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Original Articles

A NEW METHOD OF EXTERNAL FRONTAL SINUS OPERATION WITHOUT DEFORMITY.*

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CHICAGO.

The tendency of the present day is to operate on the accessory sinuses of the nose by the intranasal method because of the avoidance of a deformity and scars. It is possible to do this in all the sinuses except the frontals and some of the most anterior group of ethmoidal cells. Successful operations have been made by the intranasal method on these latter cavities by the methods advocated by E. Fletcher Ingals, Halle, and Good, and were it not for exceptions in the anatomy and pathology of some cases, there would be no need of external operations. Besides, there is considerable danger to the brain in this blind way of operating. The success of the radical procedure of Killian on the frontal sinus, etc., is due to the fact that one can see clearly the anatomico-pathologic conditions, and were it not for the marked deformity that results at times one could not wish for a better method of procedure. To overcome this difficulty several methods have been devised. Küster advises making the osteoplastic flap by raising the skin, subcutaneous tissue, periosteum and external table of the frontal sinus in one piece. After thoroughly eradicating the diseased mucous membrane, etc., and establishing good drainage into the nose, he replaces the aforesaid skin-bone flap and closes for primary intention. Results from this procedure were not absolutely satisfactory owing to the fact that the free border of the flap would fall into the cavity and cause a deformity. Again, he had no knowledge of the size of the frontal sinus in order to make the proper size flap. Winkler, Jansen, Gussenbauer, Brieger, Czerny, Schoenborn and Hoffmann have all described osteoplastic methods and modifications, and with the exception of Winkler, who refers to the value of *x*-ray plates in facilitating the technic of his operation, these authors have the principle of retaining the bone as their feature.

In the past two years I have been much interested in the skiagraphs of frontal sinuses, and while working along this line the idea suggested itself to me that if one could determine before operation the size of the frontal sinus, that is, its marginal limits, one could make just the right size osteoplastic flap. It then became necessary to develop a method to overcome the falling in of the flap.

Fig. 1.—Showing incision through skin and subcutaneous tissue through the upper margins of the eyebrows.

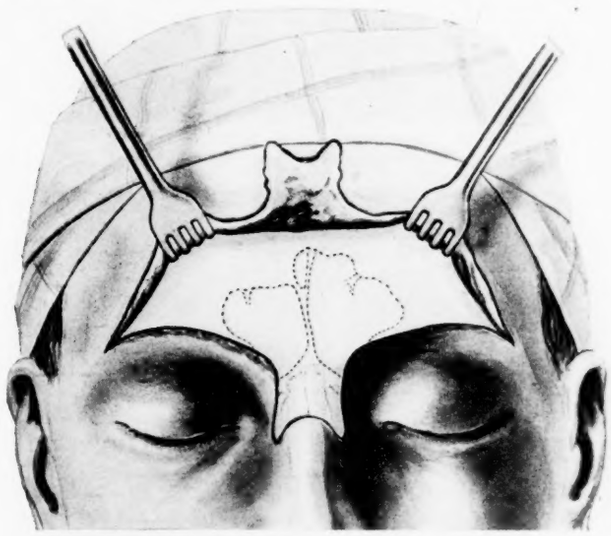

Fig. 2.—Dissection of the flap, skin and subcutaneous.

DESCRIPTION OF TECHNIC.

The method of procedure is as follows:

1. An incision is made through the skin and subcutaneous connective tissue through the upper margins of the eyebrows, then downward and inward as far as is usually done in the Killian operation. These two incisions are then joined by means of a transverse incision across the bridge of the nose (Fig. 1).

2. This skin and subcutaneous flap is then dissected upward until the upper limits of the frontal sinuses are exposed (Fig. 2). This is determined by having a

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

celluloid tracing of the radiogram (Figs. 3 and 4; natural and retouched, Fig. 5).

PREPARATION OF THE CELLULOID TRACING.

The tracing is made as follows:

Take a piece of ground celluloid film about three inches square, place over the radiogram (glass plate) negative, which is either in the transilluminating box or against the daylight. Trace the outlines with ink of the supraorbital margins from without inward until the margin of the frontal sinus is reached; this latter is now followed about its two lateral and upper margins, so obtaining upper and lateral limits and outline of the frontal sinuses. The outline of the supraorbital margins is for the purpose of getting a fixed point. This celluloid model can be sterilized in bichlorid of mercury and alcohol in order to be used during operation.

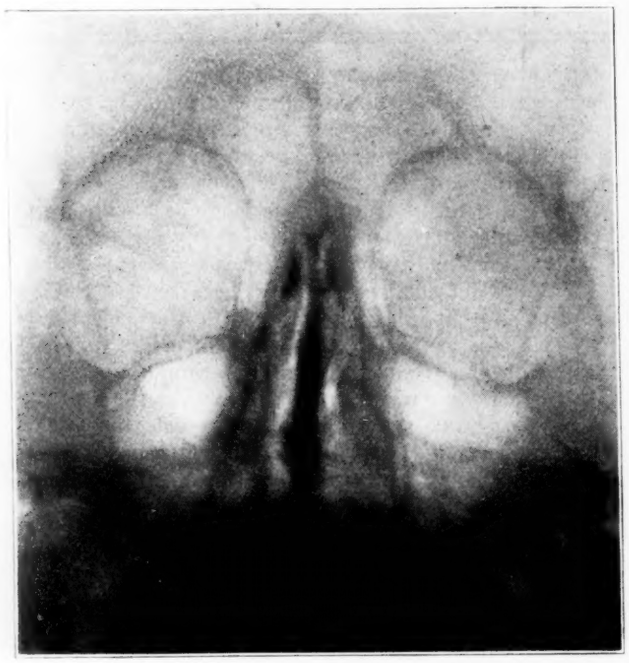

Fig. 3.—Radiograph of the sinuses.

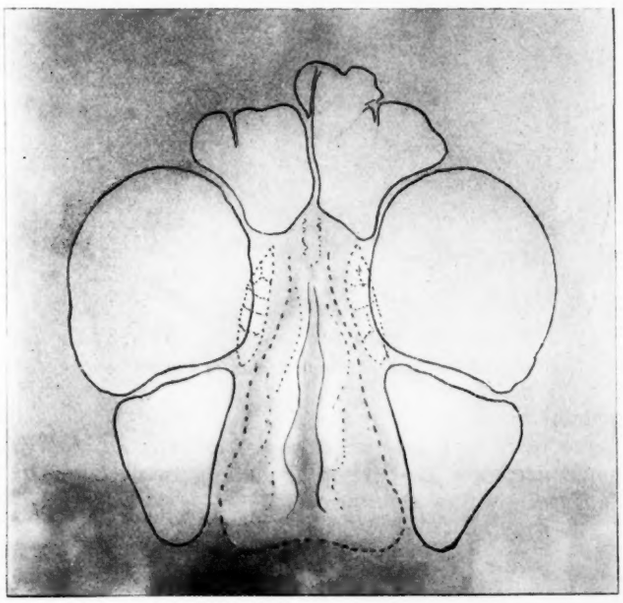

Fig. 4.—Figure 3 retouched to allow of making celluloid tracing.

If the sinuses extend very high up on the forehead, then it may become necessary to make two small perpendicular incisions at the extreme limits of the flap (external canti).

3. Place the celluloid tracing of the radiogram over the frontal sinus regions and incise the periosteum all around the upper and lateral margins of the same, but not over the supraorbital borders or at the root of the nose (Fig. 5).

4. With a flat chisel the external table of the frontal sinus is then penetrated along the whole course of the

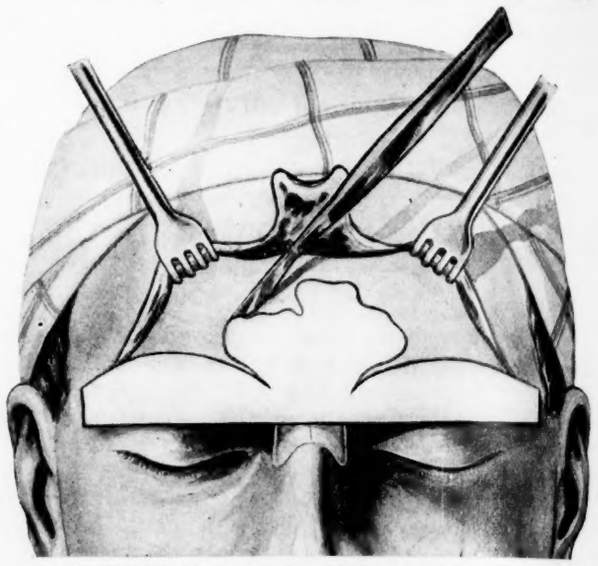

Fig. 5.—Method of placing the celluloid tracing over the frontal sinus region before making the bone flap.

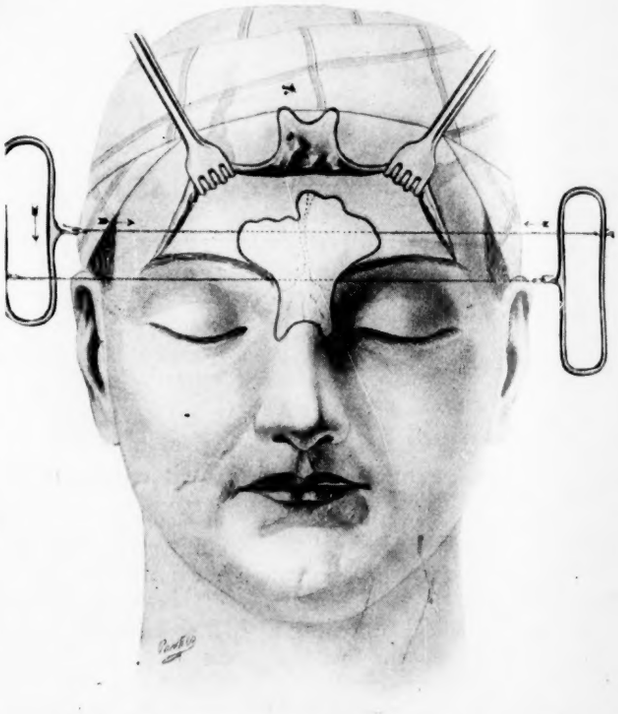

Fig. 6.—Method of using the Gigli saw to cut the bone flap.

above described incision through the periosteum, also severing the attachment of the septum of the frontal sinus from the posterior surface of the external table.

5. This osteoperiosteal flap is then slightly pried open by means of a chisel, and a Gigli saw is brought down to the base of the frontal sinus, in other words, across the supraorbital margins.

6. Carefully drawing the saw from within outward a few strokes will sever the bone but not the periosteum. Great care must be taken not to cut through this structure—rather not saw through the entire thickness of bone, as it will readily break when it is everted downward over the nose (Fig. 6). The skin flap is now reflected upward and the periosteal bone flap downward, thus exposing both frontal sinuses (Fig. 7). Right side shows the granulations removed and drill in operation enlarging the natural nasofrontal opening. Left side demonstrates the cavity filled with granulations and pus.

7. If only one sinus is to be exposed, then the technic varies only in the osteoperiosteal flap, making the incision within the limits of the frontal sinus septum. The skin flap may be made by making a perpendicular incision from the internal angle of the orbit as high as the radiogram indicates the height of the frontal sinus, within the natural intersuperciliary furrow (wrinkle) (Fig. 8).

8. Thoroughly eradicate the diseased mucous membrane, but do not curette, and enlarge the natural opening into the nose, using the Halle trephine or Good rasp. Also thoroughly remove the most anterior ethmoidal cells.

9. Introduce a large rubber tube through which is passed a wick. This wicking is loosely folded within the cavity of the frontal sinus. The other end of the tube is passed down into the nose close to the floor, with a small portion of the wicking protruding (Fig. 9).

10. Replace the osteoplastic flap with its firm hinge to prevent falling in, and its natural upper marginal bevel where the anterior and posterior tables join (Fig. 10). Bring down the skin flap and suture with silkworm gut, using the Halstead subdermal suture and a few horsehairs right over the bridge of the nose.

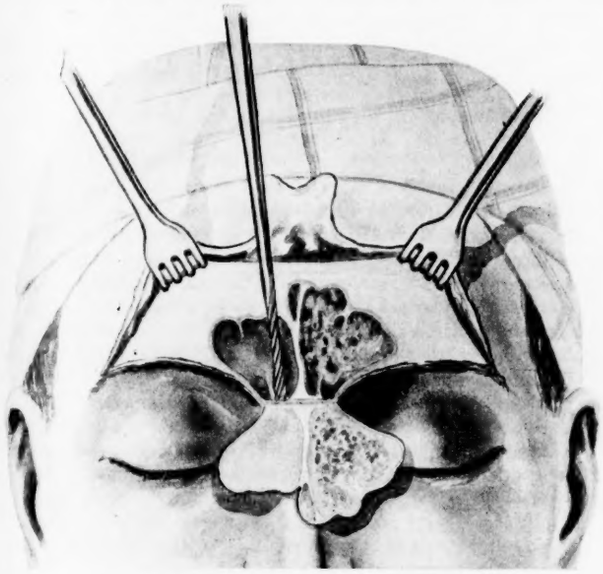

Fig. 7.—The right side shows the granulations removed and drill in operation enlarging the natural nasofrontal opening. The left side shows the cavity filled with granulations and pus.

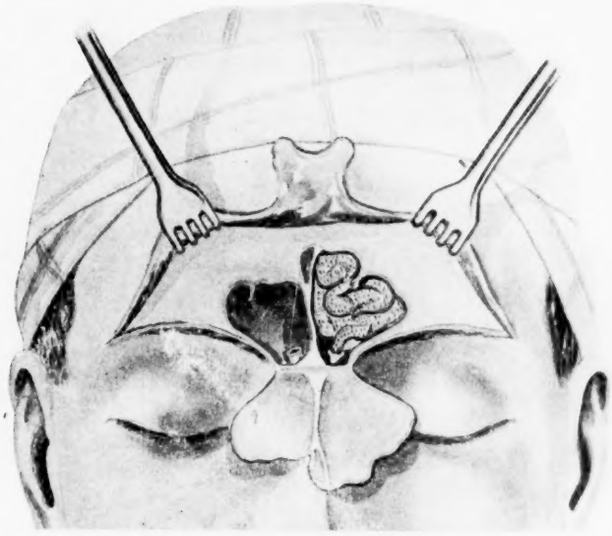

Fig. 9.—The most anterior ethmoidal cells.

Fig. 8.—Another method of making the skin flap.

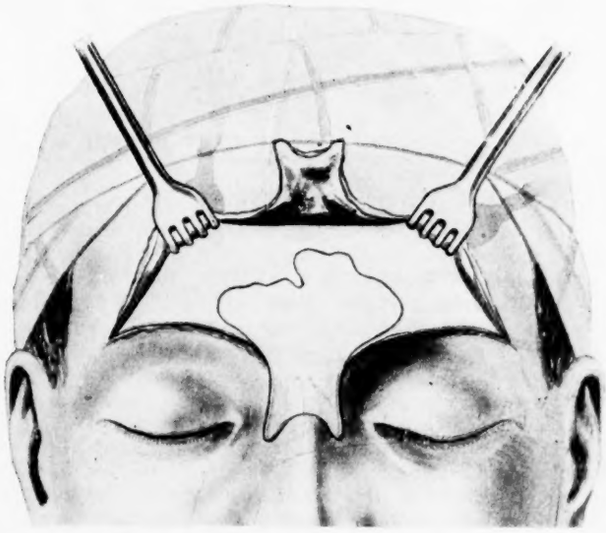

Fig. 10.—The osteoplastic flaps replaced.

THE AFTER-TREATMENT.

The after-treatment is to remove the gauze the next day, and on the third to the fifth day the rubber tube is replaced by a silver filigree or gold tube. In one case I used no tube, and now, four months since operation, the opening is sufficiently large to permit ventilation and drainage and the patient is well. One should avoid the use of douches or the strong blowing of the nose immediately after operation.

In conclusion I wish to say that this is not a radical, but a conservative, method, and if it fails the radical operation of taking away the bony flap can be done with local anesthesia.

I desire to report the case of one of the five patients operated on, since he is the longest under observation and has been well long enough to at least warrant me in venturing to present this operative procedure.

Patient.—John B., aged 21, was referred to me by Dr. John J. Kyle, Indianapolis, with a history of chronic suppuration from the accessory sinuses on both sides and a double chronic purulent otitis media. There were general symptoms of anemia and malnutrition.

Examination.—Both sides of the nose were discharging pus anteriorly as well as posteriorly, above as well as below the middle turbinated bodies. The mucous membrane was chronically inflamed and degenerated. Puncture and washing of antra revealed no pus. Both ears were discharging a foul-

Fig. 11.—Cosmetic result. The scar across the nose is concealed by the bow of the patient's spectacles.

smelling pus, and there was granulation tissue at the inner wall of the middle ear. Practically all the tympanic membrane was destroyed.

Treatment.—The treatment began April, 1905, with removal of middle turbinates and ethmoidal curettement, also enlargement of the sphenoidal openings. A partial operation had been done before on both middle turbinates and one sphenoidal sinus was entered by Dr. Kyle. Several small after operations were necessary to keep the upper regions clear. He then had a double radical mastoid operation for the cure of the chronic suppuration. His ears were cured, but the nasal trouble continued in a measure. There was always a discharge of pus, especially in front, and frequently a complaint of frontal headaches. These aches increased in frequency and severity so that about every two weeks he would have a bad attack. Attempts to pass a canula for irrigation of the frontal sinus were not successful.

Vaccine Therapy: On Sept. 10, 1907, I began opsonic work on him and found that his nasal secretions contained three different micro-organisms, for two a different opsonic index, namely:

Bacillus pseudodiphtheriæ: Opsonic index, 0.54.

Staphylococcus: Opsonic index, 0.63.

Bacillus X (believed to be the *Bacillus fœtidus ozenæ*): No opsonic index was made.

Autogenous vaccines were made from the above cultures, and the patient was systematically treated and observed according to the methods laid down by Wright and others, with the result that he improved very much locally and generally.

I was now, after about four months of the above-named treatment, beginning to hope for a cure. However, he complained of his frontal pains more and more until I finally decided to operate by the external method as described. He has made a perfect recovery. He is free from pain, and there is no deformity so far as the bony structures are concerned, and the scars are practically invisible. The scar across the nose is so placed as to be hidden by the bow of the spectacles (Fig. 11).

Of the other cases two were unilateral and two bilateral. In one of the unilateral cases the incision is like that shown in Figure 8, and there is a good cosmetic as well as clinical result. After this, however, I should always use the incision outlined in Figure 1, because it is easier, and after opening up one may find reason for going into the second sinus. The remaining three cases are all satisfactory.

DISCUSSION.

DR. A. JANSEN, Berlin: Is the suppuration cured?

DR. JOSEPH C. BECK, Chicago: Not entirely. There is no suppuration, but a mild discharge of seromucus.

DR. A. JANSEN: This is a very ingenious method of procedure; the improvement resulted quickly, and there is complete restoration without any deformity. When there is any disease of the ethmoid bone, as is generally the case in chronic suppuration of the frontal sinus, the frontal sinus will probably be reinfected from the ethmoid cells with a return of the pains, and perhaps with this makeup of the sinus may be combined a more radical operation on the ethmoid sinus, and then it is to be hoped that the results may be better. It seems to me not to be very difficult to combine with this method a larger opening and to remove all the ethmoid cells, if the condition in the ethmoid is not too marked. In this the frontal opening is small. In many cases the frontal sinuses are larger, and, therefore, it is to be feared that there is not enough drainage from the frontal cavity, and in some months, or some time later, there may be an increase of the trouble. I suppose that the method is good for some cases, but I believe that it is not adapted or acceptable as a general method for a large number of cases.

DR. J. HOLINGER, Chicago: In which pathologic condition does Dr. Beck employ this operation? Is it for the acute cases? The great number of these will get well under simple local treatment, especially syringing out the cavity itself. If it is for the chronic suppurations, which forms? Does he expect any lasting results when there are distinct pathologic changes of the mucous membrane—chronic thickening—often found, amounting to ten times its normal condition? Does he expect any distinct results in cases where there are polypoid degenerations of the membrane? There is a condition that I met in one case which would respond very promptly to this operation. It was a case of so-called caseous rhinitis; in both frontal sinuses were large masses of dried pus and epithelium, which could not be removed through the nasal route. At the same time the mucous membrane was not sufficiently changed to justify the radical Killian operation. The patient I speak of was operated on six years ago and had very little resulting deformity. The sinus was simply opened from the outside, and several years later closed by a plastic operation. That would be a distinct indication for this operation.

DR. W. W. CARTER, New York: It seems to me that this ingenious operation would be found to have a very limited field of usefulness, because, as Dr. Beck states, he only removes the inflammatory products. The membrane is not removed, and it seems difficult to know how a case could be sufficiently serious to require operation and yet be cured by the simple removal of the inflammatory products, leaving a diseased membrane *in situ*. It will find its field of usefulness in a certain number of cases; not very severe ones, however, and I think that intranasal irrigation and probably the removal of a small portion of the anterior tip of the middle turbinate would probably do about as well.

DR. B. R. SHURLY, Detroit: I call attention to the great

value of *x*-ray examination in cases of frontal sinus infection. For some years past it has been a routine procedure with me to examine every case of suspected sinus trouble by means of the *x*-ray. It is particularly valuable in the diagnosis and outlining of the frontal sinus. Dr. Beck's method of making a diagram of this *x*-ray picture is a contribution to this subject and should certainly be a part of our definite routine procedure. The question of the relief of frontal sinus trouble seems to me to be thoroughly and definitely outlined under our modern surgery. A number of these cases which apparently would require operation are readily relieved with irrigation. If that procedure does not readily afford relief, it seems to me we should follow next the intranasal route. When that is not successful we can then resort to our more simple or more radical surgical methods.

DR. J. A. STUCKY, Lexington, Ky.: It seems to me that the very unique operation described by Dr. Beck increases the danger of marked deformity. If we do get a secondary infection and an involvement of that osteoplastic flap and have to do a second operation, the deformity will be greater than if we had done the radical Killian operation. It seems to me in the class of cases referred to by Dr. Beck the intranasal operation relieving the blocked infundibulum might have given relief. We must not forget the fact that in the average case, frontal sinus infection does not begin in the sinus at first, but probably in the ethmoid cells and the middle meatus, and in many of these cases the removal of the anterior half or anterior one-third of the middle turbinate and curetting of the anterior ethmoidal cells will give the frontal sinus the drainage that is needed. In nineteen cases I have done the modified Killian operation in which I opened the sinuses, preserving the periosteum, enlarged the frontal duct, removed part of the turbinate and curetted the anterior ethmoid cells, placed a drainage tube in, and then closed the wound up externally, and after four or five years there is almost no deformity—a little dimple in some instances—and the relief has been marked.

DR. OTTO T. FREER, Chicago: I think that it would be difficult to cut out Dr. Beck's bone flap as accurately in the bone of the skull as it appears in his diagram. Dr. Beck would have been more convincing as to the feasibility of its creation if he had brought wet specimens showing the making of his flaps on the skull instead of on paper merely. My experience in making osteoplastic flaps of the anterior wall of the frontal sinus has been limited to cadaver operations only, but I have not found the neat excision of the bone covering the front wall of the sinus, so that it may be replaced as a cover, an easy matter. In smaller sinuses with thick frontal walls I could not make a flap at all and found that unequal thickness of the bone and the difficulty in making it break where I wanted it to in order to form the hinged attachment for the flap, were the chief hindrances to accurate surgical work in the procedure. For circumcising the bone flap I used the chisel and small dental circular saw driven by a dental engine, but there was much difficulty in telling when the bone was completely severed and the outlining was not accurate.

Dr. Beck's drawing shows that he used a chain-saw for making his bone flap. It is not clear to me how Dr. Beck introduces this implement underneath the bone, or how a chain-saw could be made to follow exactly the celluloid outline of the sinus. While it might do this if the frontal sinus bulged like a hemisphere, considering that it commonly lay in the level of the frontal bone or bulged but a little, it is not clear how a chain-saw could be made to cut out an irregular plate of bone of the form desired from such a flat surface. While it might be made to do so after a fashion if the intention is to cut away the front wall of both frontal sinuses, it seems incomprehensible how it could accurately follow the septum of the sinuses if only one is to be opened. The chain-saw is a jerky instrument which sticks at nearly every pull, is anything but an implement of precision, and would have a tendency to cut its way out of the sinus by bisecting the flap from underneath.

DR. A. JANSEN, Berlin: The best method for the radical cure is the Killian method, but I have performed in later years a modified operation. I conserve the anterior wall and make the reposition and in the natural situation, but on the other side of the frontal sinus. In the majority of cases after healing there is very little deformity. In many cases there is nothing to be seen, and I can advise this operation especially because with the *x*-ray examination for each operation the depth of the frontal sinus and the thickness of the anterior wall are known. When the anterior wall is thick one can always be sure after the radical operation in forming this flap that the deformity is nearly or quite *nil*.

DR. E. FLETCHER INGALS, Chicago: I commend Dr. Beck for placing emphasis on the fact that he did not scrape out the mucous membrane from the frontal sinus and thus leave a cavity that must be filled with scar tissue. Why should we want to scrape it out? Why should it be necessary to destroy a great deal of tissue when we know that at least 90 per cent. of the cases will get well if simply given free drainage? General surgeons have been doing some very radical work for many years, but the pendulum is swinging back to a better conservatism. We must speedily learn what general surgeons are beginning to understand, that conservative surgery is better than extremely radical surgery. Do not misunderstand me. Radical surgery is necessary sometimes, but in the accessory sinuses it is not necessary in more than 10 per cent. of the cases where it is commonly practiced.

DR. JOSEPH C. BECK, Chicago: In answer to Dr. Freer, the saw will not slip if made short enough. When it reaches the base it should be drawn upward. In the unilateral affection it is useless. A chisel must be used or a circular saw. I do not advise this as a radical operation, and it is indicated after all the intranasal methods have been used. This patient has had a double mastoid operation; he has had every sinus in his head except the frontal opened because of the condition. I was forced to do something to relieve the symptoms, and that is the reason I did this more conservative operation. In making the *x*-ray photographs I follow the method of Caldwell of New York and Hickey of Detroit.

FACIO-HYPOGLOSSAL ANASTOMOSIS.*

GEORGE F. COTT, M.D.
BUFFALO, N. Y.

Deformity caused by injury to the facial nerve is extremely unpleasant, not only to the patient, but also an ugly advertisement for the physician. How many cases of this accident have occurred will probably never be told.

Every operator has had one or more patients with facial paralysis, but how many such patients recover is a difficult question to solve. Ordinarily the injured nerve recovers within a year, but shows signs of beginning functioning much earlier. Of the nine or ten cases which occurred in my own practice the longest time without sign of function was four months. The length of time of cessation of function depends, I believe, on the extent of the injury or shock produced by trauma. If through infection, neuritis occurs, there may be partial permanent paralysis even though the nerve recovers from the injury.

The facial nerve in its canal courses in a practically never-varying channel (Figs. 1 and 2); the point at which it is usually injured is at its second bend toward the vertical direction. All about its canal we may find necrotic bone which needs attention. If not injured here the nerve may be exposed by necrosis of its canal and have become affected by disease from the bone or by instruments. Nevertheless one can never tell whether paralysis will follow an operation or not; therefore, great caution is necessary while doing a radical, or even the

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

Schwartze operation. In operating on the mastoid cells one can safely work downward toward the tip of the mastoid and clean out all the cells without fear of injuring the facial nerve, for it seldom varies from its vertical course more than a few degrees forward; I have, however, found it deviate backward rather than forward.

It is an important question when to decide that the nerve is beyond spontaneous recovery. The deciding period is when atrophy of the facial muscles begins, which may be within a few months of the time of injury or even within a year. Atrophy may be warded off, however, for an indefinite period by faradization or massage and spontaneous recovery has taken place, it is said, a whole year after injury. I have observed total paralysis for four months at which time the masseter showed signs of returning function. In this case anastomosis would have been called for if atrophy had taken place. It is, therefore, necessary to be alert, but

Fig. 1.—Facio-hypoglossal anastomosis; showing relations of nerves to muscles. I, facial nerve; II, spinalaccessory nerve; III, transverse process of atlas; IV, posterior belly of digastric muscle; V, sternocleidomastoid muscle.

not to interfere when there is still a chance for spontaneous recovery. On the other hand, it is just as essential to operate in time to save muscular tone; for when the muscles have become too flabby, complete recovery is out of the question and, in fact, considerable lameness often is observed years after the operation. Perhaps complete restoration does not occur in any case; the defect, however, can hardly be noticed unless the muscles are brought into strenuous play. With partial anastomosis it is doubtful as to what the result will be, for regeneration is extremely slow in such cases. But no matter how little function is obtained, it is always an improvement on total paralysis; to operate, therefore, is commendable.

The particular nerves to be united is of some importance. Most anastomoses were done, with varying results, between the facial and spinal accessory, because of the close proximity of the two nerve trunks. Progress seems to have been slow and symmetrical twitching

Fig. 2.—(After Gray) showing general relations of nerves and vessels. I, glossopharyngeal; II, pneumogastric; III, hypoglossal; IV, spinalaccessory; V, cervical plexus; VI, descendens noni; VII, communicating branches between the hypoglossal and pneumogastric and between the latter and the brachial plexus; VIII, occipital artery; IX, sternocleidomastoid.

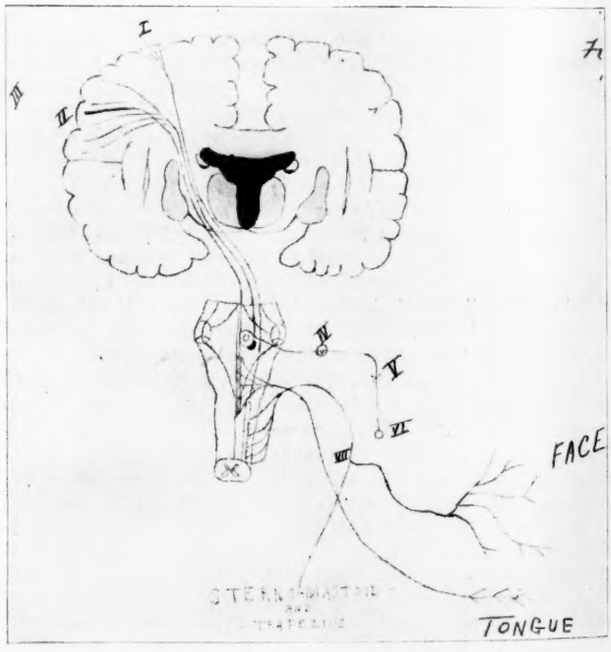

Fig. 3.—(After Murphy) showing cortical centers. I, shoulder center; II, tongue center; III, face center; IV, internal auditory meatus; V, seat of injury; VI, stylomastoid foramen; VII, facio-spinalaccessory anastomosis.

of the shoulder with movements of the facial muscles is annoying. To obviate this, the hypoglossal was selected for the following reasons: The facial and hypoglossal centers in the cerebral cortex actually overlap

each other; some observers have even claimed that fibers have been traced from one to the other centers, thus acting, as it were, in conjunction, having something in common. Very close association is also found in the medullary centers (Fig. 3). The spinal accessory is quite removed from the cortical center of the facial and really has nothing in common with it. The muscles of the shoulder also are supplied by the branches of the cervical plexus and, therefore, do not remain entirely motionless when the spinal accessory is cut. The muscles of the tongue supplied by the hypoglossal always recover provided the nerve is not severed; the inconvenience of swallowing lasting a very few weeks. All things considered, the hypoglossal is the preferable nerve although the spinal accessory is easier to manipulate.

Having decided to operate, the field is prepared in the usual way. An incision is made along the anterior border of the mastoid process and the outer border of the sternocleidomastoid muscle on a level with the external auditory meatus through the skin, superficial fascia and platysma myoides. The parotid gland with its capsule, which is in the superficial layer of the deep fascia, is then drawn forward and the facial nerve sought for. After drawing the gland forward the posterior belly of the digastric muscle is exposed which may also be drawn forward, or, if too large, cut transversely (Fig. 4). By feeling for the styloid process the nerve can readily be felt as a round cord under the finger; it is then freed from its connective tissue and traced to its exit from the styloid foramen. It may now be severed by a thin knife or, to gain more of the nerve, it may be better to chisel through the mastoid process down to the facial canal and thus gain another eighth or quarter of an inch, then cut it off and turn the proximal end out of the way.

The transverse process of the atlas is then sought and can readily be felt. The spinal-accessory nerve runs over this transverse process. The deep fascia is incised anterior to the process. The jugular vein now comes into view and with a retractor is held forward; by trying to draw it backward, it is almost impossible to explore the underlying parts. Under the jugular vein are seen the pneumogastric and hypoglossal nerves. It is necessary to select the right one; some kind of stimulation will point to the right direction. If the pneumogastric is stimulated a sudden halt will be noticed in the heart's action while if it be the hypoglossal the muscles of the tongue, the sternothyroid, thyrohyoid, styloglossus, hyoglossus, geniohyoglossus and geniohyoid will be made to respond. If no battery is handy one may follow up the nerve to the forward bend where it gives off the descendens noni. The nerve is then loosened from its bed without injuring its communicating branches with the pneumogastric. Under the deep fascia the sympathetic ganglia are felt; by cutting through this fascia the pharynx can easily be entered and the cervical ganglia also injured; careful dissection, therefore, is necessary.

Having selected the nerve it should gently be dissected out and raised on a blunt hook and incised through the sheath so as to admit the severed trunk of the facial (Fig. 5). A suture should now be passed through the sheath of the hypoglossal, making the needle emerge at the incision, and then passing it through the facial sheath and again through the severed sheath of the hypoglossal when it should be tied. This will insure positive coaptation without injury to the neurolemma, for it is important to retain the carrying power intact or the functioning result will be diminished according to the amount of neurons destroyed. If the facial nerve is too

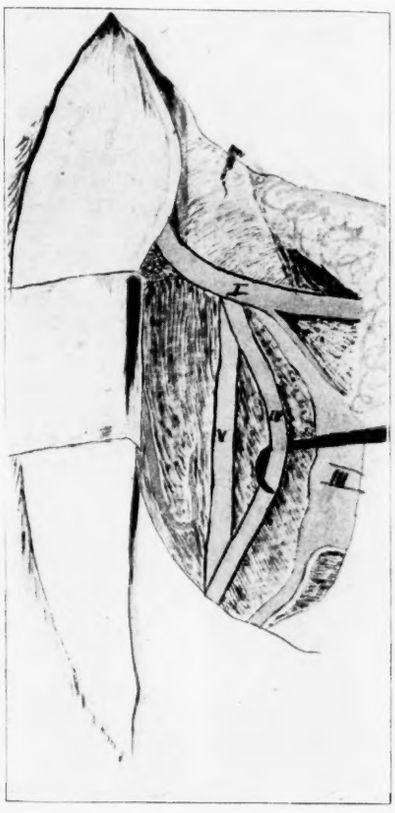

Fig. 4.—(After Taylor and Clark) Having bare the pneumogastric. I, facial nerve; II, styloid process; III, internal jugular vein; IV, hypoglossal nerve; V, pneumogastric nerve; VI, posterior belly of digastric; VII, transverse process of atlas; VIII, occipital artery.

Fig. 5.—(After Taylor and Clark). Anastomosis. I, facial nerve; II, pneumogastric nerve; III, internal jugular vein; IV, hypoglossal nerve; V, occipital artery.

short it may be necessary to split the hypoglossal nerve for from 13 mm. (½ in.) to 2 cm. (¾ in.) and bring the one end to meet that of the facial (Fig. 6). Of course the result here is much less favorable than when the entire nerve can be utilized. In one patient I have been able, so far, only to elicit movement of the lower lid after eight months.

When the suture is placed there must be no tension on either nerve. The hypoglossal is allowed to fall back into its bed; the point may be covered with Cargile membrane to prevent the connective tissue interfering with the new physiologic function or one may drop a little sterile vaselin over the joint which will effectively protect it. Paraffin also may be employed, but it is not so pliable as vaselin.

The result of this operation leaves much to be desired it is true, but even a change in expression from total paralysis is an improvement in the patient's appearance and for his mind. The operation should be performed in every case where paralysis is prolonged and bids fair to stay; atrophy of the muscles is a very safe indicator.

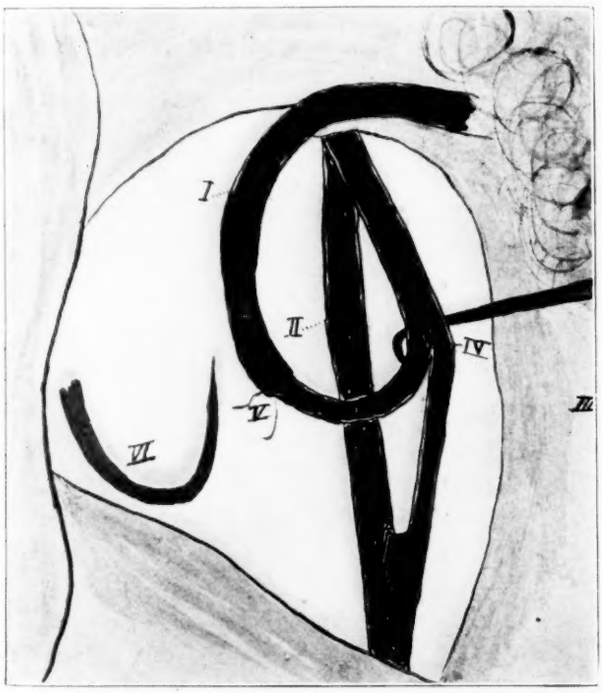

Fig. 6.—Anastomosis when facial nerve is too short and the hypoglossal has been split; I, facial nerve; II, pneumogastric nerve; III, internal jugular vein; IV, hypoglossal nerve split; V, facio-hypoglossal anastomosis; VI, occipital artery.

After operation many months may pass without any response, but finally after six, eight or ten months one will notice slight twitching of the angle of the mouth. When the orbicularis oris is supplied by both facial and hypoglossal nerves, as is claimed, or, when it is influenced by the hypoglossal through its cortical center, there is little significance to be attached to its movements, but when the zygomatic responds to the will it is a sure indication of returning motion, for the latter muscle is supplied solely by the facial nerve. Shortly after the operation it is quite necessary to stimulate the facial muscles by using massage or electricity or both, and continue until sufficient movement of the facial muscles is obtained, which may mean several years. One must not become discouraged too easily, for persistent effort often begets laudable results.

The suture material should be made of rat-tail tendon. Catgut may become absorbed too soon and silk may cause too much destruction of nerve tissue acting actually as a foreign body. Silkworm gut and kangaroo tendon are too unwieldy for work in this delicate structure. Long strands may be best obtained from the white rat, which yields thirty or forty strands of about five inches in length.

In 1905 a report by Kasper Pischel on the use of rat-tail tendon in surgery of the eye was seen by Dr. King, who thought that this material would be suitable as nerve suture and during that year experimented with it on cats. During the past year Dr. King and I have experimented further in the use of rat-tail tendon follow-

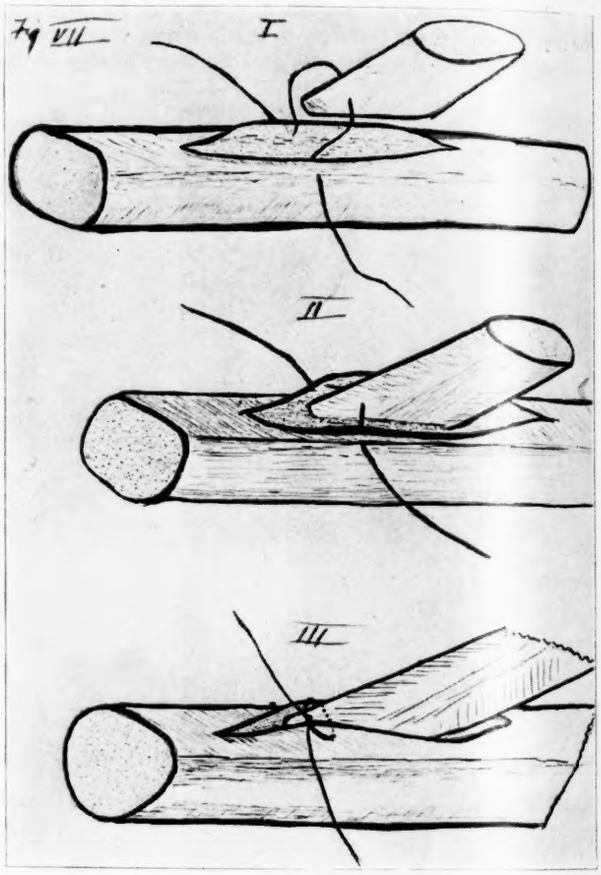

Fig. 7.—Illustrating King's method of lateral nerve anastomosis with use of rat-tail tendon.

ing the technic devised by Dr. King for implantation (Fig. 7). This method is equally suitable for a right-angle or oblique implantation and our experiments have demonstrated the practicability of both the suture material and the method.

For a classical dissertation on the subject of neurologic surgery I would refer to the articles by Dr. Murphy of Chicago and on special surgery of the facio-hypoglossal nerves to articles by Doctors Taylor and Clark of New York. I have culled liberally from both of these sources and have used them as a guide in my operation.

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DISCUSSION.

DR. JOSEPH C. BECK, Chicago: I have operated on seven living subjects and a number of cadavers by the method advocated by Dr. Cott. The operation on the living subject and the operation on the cadaver are absolutely different. Again, cases vary according to the condition about the mastoid proc-

ess and the neck, for, if there has previously been a pathologic condition, suppuration and drainage, there will be considerable scar formation, which will make dissection most difficult. Another point not dwelt on sufficiently was the use of the test of electricity, known as the reaction to degeneration, necessary in every case to determine whether an operation is to be performed or not. If one should obtain no contraction of the muscles of the face by the use of the galvanic current over the muscles there is no use in operating. The patient may have a facial paralysis, due to an involvement, or even complete severance of the nerve, and make a complete recovery without operation. If the severance is of any great extent, one-eighth or one-fourth of an inch, there will very likely not be any spontaneous recovery, because this gap will fill in with scar tissue, preventing union between the central and peripheral end. Complete recovery from this operation, that is, movement of the face, is the best result that one may hope to obtain. That result—voluntary movement of the afflicted side of the face—has been seen but rarely. I have one case in which this can be demonstrated. The patient can always move the side of the face in connection with the act of swallowing, but not independently. There are about two dozen cases on record which Dr. Cott has not cited, but most of these are reported in foreign literature and very poorly indexed.

Finding the facial nerve is one of the most difficult portions of the operation, especially when there are scars within the region of the mastoid process. I have not been able to locate it over the stylomastoid process, as he has, but I find it much easier to trace it to the capsule of the parotid gland and then follow it toward the stylomastoid process. Murphy has called attention to the danger of injuring the parotid gland. It has been my misfortune to have salivary fistulæ in two cases as a result of such injury, and the closing of the same required a long time. This complication is to be avoided by carefully manipulating the structures, especially by not using sharp retractors. I have operated in seven cases, but was successful in only three. Sufficient time has not elapsed for one to say whether or not the other patients will recover. The shortest time of recovery on record is three months, which occurred in one of my cases. This, I believe, was due to the fact that I knew that the patient could not recover the function of her facial nerve without operation, and consequently I operated after the paralysis had existed only six months. Just as soon as one decides that spontaneous recovery is very likely not going to take place, one should operate without loss of time, and as a result the recovery will be that much more rapid.

There is not another structure in the human body that stands as much tension as nerve structure, and, if properly united, one need not fear bad results from a little tension. The tension that is thus put on the facial has no effect on it whatever.

DR. A. JANSEN, Berlin: I advise waiting a considerably longer time than has been indicated in paralysis following operation for pus, for I confidently expect that even as long as a year and a half after such a condition has existed spontaneous recovery will occur; and certainly one would rather have such a result than an unnatural anastomosis with any other nerve.

DR. GEORGE F. COTT, Buffalo: We all know how much tension a nerve will stand. This nerve will stand absolutely none. I want to emphasize it. That is the reason we use the rat-tail tendon for the suture; it tears out if there is any tension. The nerve must be perfectly flaccid. I do not want to imply that this is a simple operation, by any means. I think that every specialist in otology ought to know how to do it, and not send it to the surgeon. I have worked as long as three hours and ten minutes on my case. It is necessary to work extremely carefully. In regard to finding the facial nerve over the styloid process, when the nerve is large enough it can be felt, not especially when it is degenerated, but when it is there and is of any thickness at all.

Some positive results ought to be obtained within six months. I do not think that complete recovery ever results. It may take two years to obtain any marked improvement.

A METHOD OF COMPLETE NEPHRO-URETERECTOMY FOR RENAL TUBERCULOSIS IN WOMEN.

E. ZEH HAWKES, M.D.
NEWARK, N. J.

The ureter is firmly attached at each end—to the kidney above, to the bladder below. Between these points it is loosely adherent to the peritoneum and embedded in lax areolar tissue. If separated from its bladder attachment the normal ureter can be pulled up out of the pelvis by traction on its kidney end. In ten consecutive experiments on cadavers—male and female—through a median abdominal incision I cut the ureter free from the bladder and then lifted out the kidney, its blood vessels being severed at the hilum. The ureter was pulled up with the kidney and removed unbroken.

Infections from without, especially pelvic cellulitis or carcinoma, may firmly fix the ureter, also perinephritic infections. Infections from within the ureter, however, seldom pass through the ureteral wall. The ureter may be ulcerated, strictured or dilated, yet will probably maintain its normal looseness of attachment. Howard Kelly, in his "Operative Gynecology," says: "A periureteritis due to an inflammation extending from the interior of the ureter is rare; I have not yet encountered it in any case." We may, then, expect to find the normal looseness of attachment of the ureter in uncomplicated cases of tuberculosis of the kidney and ureter. The problem of complete nephro-ureterectomy for renal tuberculosis, therefore, is a question of separating the lower end of the ureter from the bladder. For this I have devised the following operation:

Put the patient in the knee-chest position and, after the Kelly technic, a searcher is introduced as far as it will go into the diseased ureter and left there. A Sims speculum, the largest possible, is now inserted into the vagina, the perineum retracted upward, and the light reflected into the vagina. Raising the searcher causes a ridge corresponding to the underlying searcher and cystoscope to appear in the vagina (Fig. 1). Along the summit of this ridge, beginning at the tip of the searcher, the vagina is split and the ureter exposed; beyond the tip of the searcher it is not safe to cut because of the uterine vessels.

By blunt dissection with a curved artery clamp the exposed portion of the ureter is isolated. The clamp is also thrust along the ureter into the cellular tissue of the broad ligament and the ureter loosened from its surroundings beyond the upper end of the incision. The bladder is now widely separated from the vagina on each side of the incision and forward of the end of the ureter, the purpose of which is to allow secure closing of the bladder, as will be explained later. Near its insertion into the bladder the ureter is now tightly tied with celluloid thread so that when the bladder is opened urine can not come down the ureter and soil the wound.

Traction away from the bladder is made on the ureter, an infundibulum being thus produced, the base of which is the bladder wall (Fig. 2). The top of this infundibulum is cut across with scissors, thus freeing the end of the ureter and opening the bladder. The end of the ureter is sterilized by means of the actual cautery and pushed up into the vault of the vagina while the bladder is being closed. Avoiding its mucous membrane the bladder is closed with two rows, one on the other, of No. 2 plain catgut. A wide area of bladder wall is thus

infolded, giving a strong water-tight support during healing and a broad and strong cicatrix. If this be done, one need not fear leakage and need not use a self-retaining catheter. The vaginal mucous membrane, except at the upper end of the incision, is closed, either separately or included with the second row of bladder catgut.

Because of the position of the patient the opening and closing of the bladder has been accomplished without soiling of the wound by bladder contents. Of the left ureter a greater length can, for anatomic reasons, be freed. The operation is easier in the capacious vaginæ of parous women.

The position of the patient is now changed to that customary for oblique lumbar nephrectomy and the kidney freed from its vessels, the ureter, of course, not being cut. The lumbar incision need be no longer than would be necessary to isolate and remove the kidney alone. The hand is now passed postperitoneally along

Fig. 1.—The patient is in the knee-chest position. The cystoscope has been introduced through the urethra into the bladder and the searcher through this into the ureter. A Sims speculum sharply retracts the perineum, disclosing the ridge caused by cystoscope and searcher. The incision is made along the summit of this ridge.

the ureter down into the pelvis, making what separation of the ureter may be necessary, and without difficulty the lower free end is grasped and brought up out of the lumbar wound. The wound is closed except for rubber tissue drainage.

REPORT OF A CASE.—*History.*—Mrs. C., aged 30, mother of two children, was always well until 1902 when she began to have pains in groins and in lower back. Consulted Dr. William M. Goodwin of Newark, N. J., February, 1903, who found the perineum lacerated and the uterus retroverted. In May 1903 complained of ilio-lumbar pain. Examination showed prolapse of left kidney. About this time the patient became pregnant. Repeated examinations during next few months showed neither albumin nor pus in the urine. In March, 1906, she had measles. During the next year the pain in left lumbar region increased and in the Spring of 1907 began to radiate down in the direction of the ureter, and micturition became more frequent. About June 1 she had a chill and took to bed and had the additional symptom of painful micturition. During the next four weeks the temperature varied between normal and 102 F. Dr. Goodwin discovered, on vaginal examination, a tender ridge in the anterior vaginal wall, which he diagnosed as a thickened ureter. Examination of urine showed pus and tubercle bacilli. Patient entered my service at Newark City Hospital June 29, 1907.

Examination.—She was thin but not emaciated; pale, but in fair general condition. Heart, lungs, and abdomen negative. Left kidney palpable, freely movable, somewhat tender. By vagina, left ureter palpable, thickened and tender, uterus in retro-position. Mixed urine showed pus and tubercle bacilli. Urine from right kidney negative, from left kidney positive as to pus and tubercle bacilli.

Operation.—July 2, 1907, the ureter was isolated and separated from the bladder by the operation just described and the bladder closed. Through a lumbar incision the kidney and ureter were isolated and removed as above detailed. The kidney contained several tuberculous abscesses and the ureter was irregularly thickened and dilated. Patient made a good convalescence.

Postoperative History.—April 24, 1908, Dr. Goodwin stated

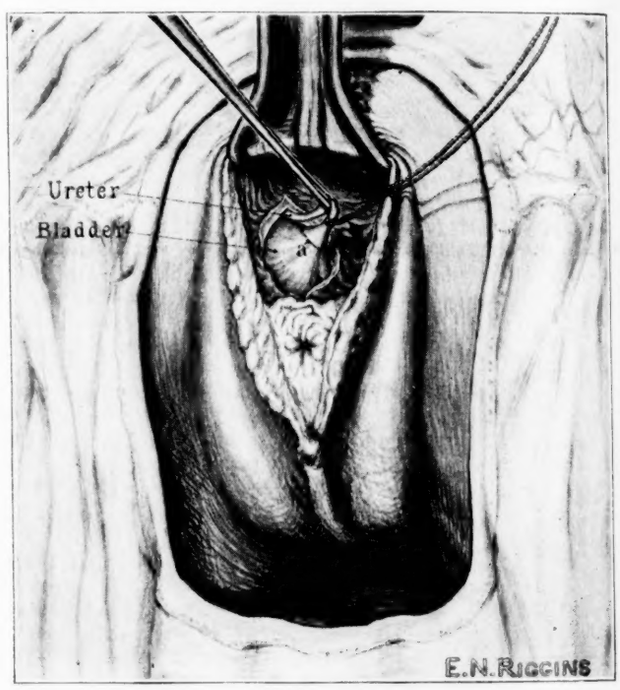

Fig. 2.—The vagina has been incised, the ureter freed and tied and the vagina widely separated from the bladder. Traction has been made on the ureter in the direction away from its attachment, an infundibulum of the bladder wall being thus produced. The ureter is to be cut free from the summit of this infundibulum, at dotted line a.

that for a considerable time after leaving the hospital the patient had an induration to the left of the cervix, which drew the cervix to the left and allowed the fundus to tilt to the right. She continued to have a pain in the back and right side, which pains were relieved by a pessary. She had gained twenty pounds and was in good general health. There were no urinary symptoms.

Infantile Pseudo-leukemic Anemia.—C. Cohen calls attention to the fact that each of the children presented evidences of rachitis in the six cases he describes in a communication in the *Rev. mens. d. Mal. de l'Enfance*, for July, 1907. In the cases on record, also, the presence of signs of rachitis is invariably mentioned. This suggests a possible connection between the rachitis and pseudo-leukemic anemia which further histologic study of the blood-forming organs may explain.

A SPECIAL DIAGNOSTIC PHENOMENON IN CEREBELLAR DISEASES.

REPORT OF SIX CASES, FOUR OF WHICH CAME TO AUTOPSY.*

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PHILADELPHIA.

A localizing diagnosis of cerebellar diseases presents at times some difficulty. Among all the symptoms, palsies of cranial nerves are very important, but when they are absent the determination of the seat of the lesion becomes embarrassing. Certain attitudes of the body, and especially of the head, may be present in some cases, and when they do occur they are of considerable assistance in localizing the lesion.

The following six cases have been studied by me from the latter standpoint. The correct diagnosis of four cases was verified on postmortem examination. The other two presented the classical symptom-group of cerebellar tumors. The special phenomenon to which I wish to call special attention was present in each of the cases. The inference drawn as to the seat of the tumor was corroborated postmortem.

CASE 1.—*History.*—William R., aged 12; five years ago began to show symptoms of gastrointestinal disorder. There were occasional nausea, eructations, aversion for certain articles of food and also slight headache. For months he was considered a dyspeptic and treated accordingly. Then the headache gradually increased and vomiting made its appearance. Soon the child commenced to complain of dimness of vision. Dr. W. W. Keen was first consulted in 1904 and he referred the patient to me for an opinion. At that time I made the following observation: The headache was excruciating, vomiting was frequent, the gait distinctly cerebellar (titubation) with a tendency to walk towards the left. Blindness was partial. The knee jerks were abolished on both sides. The Babinski sign was present on the right side and paradoxical reflex on both sides. The lower part of the face was deviated to the right. The pupils were unequal, the left the largest. Nystagmus was marked on lateral movements of the eyes especially when the latter were turned to the left. The eye-grounds showed choked disks on both sides, more on the left than on the right. Gradually the condition became worse. The patient's headache got unusually intense, he lost the power of locomotion, had frequent attacks of vomiting, became totally blind and the head was held inclined on the left side.

Diagnosis.—Cerebellar neoplasm, probably on the left side.

Treatment.—A course of treatment with iodids gradually improved the condition so that at the end of a few months he was free from headache and vomiting. The suffering disappeared, but the blindness remained. The little patient was able to walk, his sleep, appetite and digestion were excellent. The head remained inclined to the left side, the left facial palsy was unaltered.

Subsequent History.—After a period of two years the symptoms began to return. The following symptoms were then observed: Headache, but no vomiting, total blindness, deafness of the left ear, paralysis of the external recti, more in the left eye than in the right, nystagmus more on movement of the eye to the left than to the right, inability to walk or stand, but no paralysis of the limbs; the knee-jerk abolished, Babinski sign and paradoxical reflexes present on both sides. Sensations were normal. The striking symptom was the unavoidable necessity for the patient to hold his face turned to the right side, as whenever he or any one would turn it to the left, a most intense vertigo would appear. At this stage of the disease the position of the head changed, viz., from the left to the right and remained in this position until the end, but the appearance of vertigo on turning the face to the left made the association very important. The change in the position of the head appeared six months before the patient died.

Autopsy.—The autopsy showed a soft tumor in the left cerebellar hemisphere pressing partly on the vermis and forward on the superior cerebellar peduncles. No permission was granted by the relatives to remove the specimen for microscopic examination.

CASE 2.—*History.*—S. M., girl, aged 9, with good family and personal histories, fell down a flight of thirteen steps, striking her head. She was not unconscious, but bled considerably from the nose, and vomited. Two days later she vomited again and kept on vomiting almost daily until death, viz., for a period of five months. During all that time she suffered from severe headache. Two weeks after the accident she began to hold her head forward and inclined to the right. An attempt to turn the head to the left produced an intense vertigo which was immediately relieved when the head was placed in the former position.

Examination.—On examination, I found the position of the head as described above, marked titubation with a slight tendency to fall towards the left, increased knee-jerks, and paradoxical reflex on the left. The eyes at that time, viz., two months after the accident were normal except for a dilatation of the pupils. In spite of the absence of characteristic eye symptoms my diagnosis was that of a cerebellar tumor and probably on the left side. Subsequent events proved it to be correct. Two and a half months later the eye examination showed the pupils slightly responsive to light, but not to accommodation nor to convergence; right optic nerve hyperemic and retinal veins tortuous and overfilled; left optic neuritis low in grade, but acute, neighboring retina edematous. At the same time the headache increased and the vertigo on turning the head to the left was intense. The vomiting continued. The patient grew worse and one morning she was found dead. In this case the peculiar position of the head appeared immediately after the severe symptoms set in.

Autopsy.—The dura was tense over the entire brain especially on the left side posteriorly. There was an excess of fluid at the base. Projecting from the lower aspect of the left lobe of the cerebellum was a mass, grayish in color and very fragile, the outer portion being as soft as brain substance. The growth extended from slightly across the median line to the right outward at a distance of 6 cm. Anteroposteriorly it was 5 cm. in extent at the point of attachment. It attain an elevation of 4 cm. A portion of it was adherent to the dura and separated by its own weight from the underlying portion of the growth. The growth extended for some distance into the cerebellar lobe to which it was quite loosely attached. Microscopically the tumor proved to be tuberculous. (See illustration.)

CASE 3.—*History.*—S. L., man, aged, 35, presented the following symptoms: Vertigo, vomiting, occipital headache, and diplopia.

Examination.—There was marked titubation with a tendency to fall towards the right, nystagmus on lateral movements of the eyes, diminished knee-jerks, right hemi-asynergy and inclination of the head toward the left. The fundi of the eyes showed choked disk on the right, congestion on the left. The headache was intense. An operation was declined by the patient and his relatives. He left the hospital. Two months later I saw him and found the condition unchanged. The position of the head toward the left was fixed and the slightest attempt to turn it to the right produced an intense vertigo. I have had no opportunity to see him since. In this case the special position of the head remained unchanged during the entire time of observation, viz., five months.

CASE 4.—*History.*—W. L., man, aged 49, was admitted to the Jefferson Hospital during summer 1906. He complained of severe frontal headache, vertigo and vomiting. Titubation, nystagmus, loss of knee-jerks with Babinski's sign and double optic neuritis were the other signs of presumable cerebellar disease. The head was drawn backward with a

* Read before the American Neurological Association, May 20, 1908, in Philadelphia.

slight inclination towards the left, but when it was turned to the right, vertigo became intense. The patient died and no autopsy was allowed. The special attitude of the head remained unaltered during the six weeks of observation at the hospital and according to the patient's relatives, had been noticed from the beginning of the disease.

CASE 5.—*History.*—S. G., married woman, aged 29, was treated for two years for gastric trouble, accompanied by nausea and vomiting. She then sustained an accidental injury, falling off a car. Soon violent headache developed which was confined to the left side of the forehead. The vomiting became more frequent. I saw her six weeks after the injury and she presented in addition to the above symptoms distinct titubation with a tendency to fall toward the left, diminished reflexes, nystagmus on movements of the eyeballs to the left and partial blindness. The eye-grounds showed choked disk on the left and optic neuritis on the right. The head was inclined to the right and the least attempt to turn it to the opposite side caused an intense vertigo and nausea. The patient died and a soft tumor was found in the left cerebellar lobe directed downward and forward. The husband strongly objected to the removal of a smallest portion of the tumor. The nature of the neoplasm, therefore, could not be determined. According to the relatives' statement the head

Tuberculous tumor of the cerebellum. Brain of patient in Case 2, showing tumor mass on lower aspect of left lobe of cerebellum.

at first was inclined to the left, but three weeks before death turned to the right.

CASE 6.—*History.*—A. H., girl, aged 16, while playing two years previously, was struck on the head by a brick. The accident was followed by an attack of unconsciousness lasting fifteen minutes. Five hours later she had a severe vomiting spell. During the following three months she suffered from headache and insomnia. The symptoms gradually subsided and for a period of eighteen months she would only occasionally complain of headache in the occipital region. Three months before her death she fell, after which the headache became very severe and it was accompanied by vertigo. She complained of dimness of vision. The head soon assumed a certain position. It was drawn slightly backward and inclined to the left. As the headache kept on increasing in intensity the patient instinctively sought various positions in anxiety for relief. The head was then held by her, inclined to the right. She claimed that this was the only position which made the headache more tolerable and in which the vertigo was almost entirely absent. As soon as she would straighten it and turn it to the left, an intense vertigo would set in and she would fall.

Examination.—Examination of the eyes showed a choked disk in the left and slight optic neuritis in the right. Nystagmus was present on lateral movements of the eyes and equally on both sides. Blindness was rapidly increasing. The gait was somewhat ataxic, but presented no distinct titubation. Sensations were not impaired. Respiration and deglutition were normal. The headache remained severe and the intense vertigo on turning the head to the right remained until death. My diagnosis was a cerebellar tumor on the left. An operation was declined.

Autopsy.—At the autopsy a small soft mass was found on the upper surface of the left cerebellar hemisphere pressing on the vermis. No permission was given for removal of the specimen.

The four cases that came to autopsy are conclusive as to the relation of the attitude of the head to a cerebellar disease. In the two purely clinical cases the symptoms of the cerebellar tumors were so typical that there is no doubt as to the diagnosis. In all six of the cases the head assumed a certain persistent position.

In four cases it was turned to the side opposite the lesion during the entire course. In two of them it was inclined at first toward the seat of the lesion, but sometime before the patients died the head changed its position. All the six cases are a good illustration of the fact that in cerebellar diseases, generally speaking, a special attitude of the head is a pathognomonic sign. If I omit the purely clinical cases and confine myself exclusively to the four clinico-anatomic cases I am warranted to say that the field of surgical operations in cerebellar cases should be decided on from the position of the head when the latter is in an abnormal attitude.

Special emphasis is needed in regard to the increase of vertigo and headache when the inclined heads were turned forcibly toward the side of the lesion. This observation is quite novel. In the literature at my disposal I have been able to find one similar but not identical case published by Laruelle.[1] He localized the tumor in the left cerebellar hemisphere because the head was inclined toward the same side. The tumor, however, was found on the right. The record also shows that each attempt to turn the head to the opposite side provoked an unusual pain.

This case, taken in connection with mine (in which there was particularly vertigo instead of pain in similar manipulations of the head), appears to me quite significant from the standpoint of localization of cerebellar tumors. Its importance is obvious. The clinical observation of my six cases, or at least of the four that came to autopsy, is analogous to the experimental fact observed by Risien Russell. The latter showed that after ablation of one lobe of the cerebellum the trunk of the animal is curved with the concavity to the side of the cerebellar lesion, the side of the face is approximated to the shoulder on the same side.

This peculiar change of position of the head during the evolution of the cerebellar syndrome did not occur in each of my cases at the same period of the disease. In the first case it occurred six months before death; in the fifth only three weeks before the fatal issue. In the third, fourth and fifth cases the head assumed from the beginning the abnormal position with increase of vertigo and headache on turning it to the side of the lesion. In the second case the fixed position of the head on the side opposite to the lesion appeared after the severe symptoms set in.

1. Rev. Neurolog., 1906, No. 4.

It is impossible to say why the change of position of the head occurs at various periods in various cases. It is also difficult to say why the change occurs at all and why when the head is turned toward the lesion the vertigo and headache become intolerable. At all events, it is useful in my opinion to retain this fact that in my cases at least the increase of vertigo caused by placing the head in an opposite position was an indication for the seat of the cerebellar tumor. The number of my cases is certainly too small to draw definite conclusions. Further observations are, of course, necessary. The phenomenon in question, however, is, I believe of a diagnostic value.

In the above-mentioned record of Laruelle the phenomenon escaped the author's notice, but, nevertheless, it was present and verified by the autopsy.

PATHOLOGIC REPORT OF THE NERVOUS SYSTEM IN A CASE OF SPONDYLOSE RHIZOMELIQUE.*

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PHILADELPHIA.

A study of the nervous system in cases of spondylose rhizomelique and allied conditions has been made only in a few cases, those of von Bechterew,[1] Leri,[2] Reuter,[3] Fraenkel[4] and McCarthy,[5] to which reference will be made later.

In the case which forms the basis for this report the brain, spinal cord, peripheral nerves and muscles were examined, and pathologic changes, though slight, were distinctly observed. The addition of this case, therefore, to the meager literature of the subject, at least so far as a study of the nervous system is concerned, throws some light on a subject about which there exists much diversity of opinion.

History.—The patient, Z., was a man, aged 64, whose history, unfortunately, can not be given, except that he was admitted to the Philadelphia Home for Incurables, Sept. 29, 1903, and remained there, practically in the same condition as to the symptoms under discussion, until his death on June 18, 1907. I examined him a week before his death, although I had previously frequently observed him without careful examination.

Examination.—The entire spine, including the articulations with the cranium and pelvis, was ankylosed, presenting the characteristic appearance of so-called "poker-back." There was ankylosis in both hips, knees and shoulders, although this was not complete. The arms could be moved about 30 or 40 degrees at the shoulders. The elbows, hands, ankles and toes were not involved. There was general emaciation at the time of the examination, so that the presence of local atrophies could not be clearly determined. There was pain in both sciatic regions, extending from the knees to the hips, but no pain was complained of elsewhere about the body. The spinal column stood out prominently, and the muscles of the back were probably wasted. Tests for pain, touch and localization gave negative results. Two months before death he developed tuberculosis, which became general, and from which he finally died.

Autopsy.—At the autopsy, when an effort was made to remove the cord, it was discovered that the entire spinal column presented the appearance of one bony mass. It was so hard that it was difficult to saw through into the spinal canal. On removing the spines and arches of the vertebræ a considerable amount of caseous material was found on the outer surface of the dura, extending from the lower thoracic, to the lower cervical region. There was no evidence of tuberculous bone disease, or tuberculous abscess, and macroscopically there were no tubercles.

The dura was adherent to the skull, and a few tubercles were found over the convexity of the brain. Both lungs were infiltrated by tubercles and were the seat of many cavities. The right kidney was also implicated.

The brain and spinal cord, the plantar nerves, sections of the sciatic and smaller sciatic nerves, and some of the muscles from the plantar surface of the foot were preserved for examination. The spinal cord was hardened in Müller's fluid, and stained by the Weigert method, and in hemalum, acid fuchsin, and thionin.

The white matter of the cord itself showed no abnormality. There was, however, a slight degeneration present in several of the roots. In the lumbar region the right anterior, and left posterior roots were slightly degenerated. In the lower thoracic region there was slight degeneration of the anterior roots. Elsewhere the roots stained normally.

Microscopic findings in a case of spondylose rhizomelique, showing degenerated spinal root at A (Weigert method).

The cells of the spinal cord in the spinal and cervical regions showed the following changes: Some were rounded, had lost their prolongations, and contained an excessive amount of yellow pigment. Clumping of the chromatic substance was present in some, and in a number of them the nucleus was dislocated, and the yellow pigment excessive.

The small sciatic nerve was slightly degenerated in cross sections. An abundance of fatty tissue was seen, and there was increase in the connective tissue. The plantar nerves were also degenerated. The large sciatic nerve was normal.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

* From the Howard Hospital, and the Department of Neurology and Laboratory of Neuropathology of the University of Pennsylvania.

1. Deutsch. Ztschr. f. Nervenh., xv, 45; Neurol. Centralbl., 1892, p. 426; Deutsch. Ztschr. f. Nervenh., xv, 37; Ibid., 1897, No. 11, p. 327.
2. Rev. neurol. 1905, p. 1085, and Revue de méd., 1899, No. 19, p. 597.
3. Ztschr. f. Heilk., 1902, No. 23, p. 83.
4. Fortschr. a. d. Geb. d. Röntgenstrahlen, 1903-4, p. 62.
5. New York Med. Jour., 1905, June.

In the left paracentral region there was marked perivascular distention, and slight infiltration of the pia. The same condition was found on the right side, where there was also some change in the pyramidal cells. Some of the cells were swollen, and the nuclei eccentrically placed.

A study of the muscle tissue from the plantar surface showed an increase in the number of the intramuscular connective tissue cells; irregularity in the size of the muscle fibers; loss of the transverse striations in some of the fibers and lumpiness of the muscle substance of individual fibers. There was no vacuolization. The blood vessels showed no endarterial thickening, or sclerosis.

A portion of the spinous process of one of the vertebræ was studied microscopically. The bone trabecula was compact but not unduly so. There was no evidence of any abnormal condition whatever. In fact the specimen presented the normal appearance of bone.

Summary.—A man of 64 presented the characteristic clinical manifestations of spondylose rhizomelique, i. e., rigidity of the spine, and partial ankylosis of the shoulder, hip, and knee joints. Pathologically there was slight degeneration of some of the anterior and posterior spinal roots, slight peripheral neuritis, and muscle taken from the plantar portion of the foot was degenerated.

While Marie and Leri[6] still assume that spondylose rhizomelique is a disease entity differing from the other forms of ankylosing disease of the spinal column—and especially separated from von Bechterew's type—there are many who maintain that these two varieties are but manifestations of one and the same disease.

The differences between the von Bechterew and the Strümpell-Marie types may be stated, according to Zesas,[7] as follows:

In von Bechterew's type (1) the spinal column is rigid; (2) kyphosis is always observed; (3) irritation symptoms are always present; (4) the joints of the extremities are intact; (5) etiologically there is a history of inheritance, trauma and lues.

In the Strümpell-Marie type (1) the entire spinal column is rigid; (2) kyphosis is not always present; (3) symptoms of irritation of the roots are usually absent; (4) there is an ossifying process in the joints of the extremities; (5) etiologically a history of rheumatism and infectious diseases is obtained.

In von Bechterew's[1] original case, with autopsy, there was no primary lesion of the vertebræ, and the rigidity of the spinal column was attributed to a secondary paretic condition of the muscles, the result of a compression of the nerve roots from a pachymeningitis. von Bechterew also believed that his type of spinal rigidity differed from that described by Strümpell,[8] under the name of chronic ankylosing spondylitis, in whose cases the head, spinal column and hips were firmly united and completely stiffened. Cases similar to those described by Strümpell have been reported by Marie and Anstie.[9] While in Strümpell's cases there were no root symptoms, these were pronounced in von Bechterew's cases, and in the former there was involvement of the great joints, which were intact in von Bechterew's cases.

Reuter,[3] while admitting that, clinically, there was a difference between these two types, claimed that this difference was not proved pathologically. He believes that such cases are due to a bony process to which he applies the name "ascending ankylosis of the spinal column, with bow-shaped kyphosis."

6. Nouv. iconog. de la Salpêtrière, 1906, 19, p. 32.
7. Deutsch. Ztschr. f. Chir., 1904, No. 74, p. 467.
8. Lehrbuch der Specielle Pathologie, ii, 534; and Ztschr. f. Nervenh., xi, 338.
9. Presse méd., 1898; and Marie: Revue de méd., 1898, p. 285.

Siben,[10] Fraenkel,[4] Elliott,[11] and Rumpel[12] did not believe that any difference could be made between these two types, while Schlesinger[13] not only did not recognize any difference between these two types, but did not differentiate between arthritis deformans of the spinal column and other cases of rigidity of the spinal vertebræ. Nor, in Oppenheim's[14] opinion, was it decided that a difference existed between the various types of spinal ankylosis, either clinically or anatomically.

Zesas,[7] after reviewing the subject very carefully, concluded that the observations, so far, do not permit the view that, etiologically or symptomatically, and much less pathologically, these two forms were independent affections, and, according to Niedner,[15] the pathologico-anatomic substratum of the von Bechterew type was similar to that of the Marie-Strümpell type, and consisted of an ossification process of the cartilages and ligaments.

On the other hand, Glaser[16] reported a case in which the findings coincided with those of Marie's case, and more recently Marie and Leri[17] have maintained that there is a distinct type which they call "spondylose rhizomelique."

The autopsies of ankylosing disease of the spinal column which have been reported can be more or less divided into (1) those in which the small joints of the vertebræ are mainly affected, leaving the cartilages intact, or only slightly involved; (2) those in which the cartilages are especially altered; (3) those in which the process involves equally the small joints and the cartilages.

In the first category belong the cases of Marsh,[18] Glaser,[16] Milian,[19] Fagge,[20] Simmonds,[21] and Fraenkel.[4] In Marsh's case there was ossification of the ligaments and complete ankylosis of the several joints. There was no atrophy of the body of the vertebræ, nor any change in the intervertebral discs.

Glaser cited a case of chronic ankylosing inflammation of the spinal column, in which there was ankylosis of the articulating process, and between the ribs and the vertebræ. There was no involvement of the intervertebral discs, or the body of the vertebræ. He cites the case of Howard Marsh, in which the findings were similar.

In Hilton Fagge's autopsy (cited by Leri) the intervertebral cartilages were of normal appearance; the arches of the spinal apophyses were united by bone, and there was an osseous process, with complete destruction of the articulations. In Milian's case the vertebral column was immovable and bow-shaped, and the hips and shoulders were involved. There was an osseous disease of the articulations of the ribs and the bodies of the vertebræ. Intervertebral cartilages were normal.

Simmonds reported 2 cases in which there was intense ossification of the ligaments and an ankylosis of the joints of the vertebræ. Fraenkel reported 4 autopsies of chronic ankylosing rigidity of the vertebræ, in which the intervertebral cartilages were only slightly involved. The vertebræ were connected by broad bony

10. Ztschr. f. klin. Med., 1903, No. 49, p. 241.
11. Am. Jour. Orthop. Surg., 1905-6, No. 3, p. 303.
12. Deutsch. med. Wchnschr., 1905, p. 1130.
13. Mitt. a. d. Grenzgeb. d. med. u. Chir., 1900, vi, 247.
14. Lehrbuch der Nervenkrankheiten, 1905, i, 309.
15. Charité-Ann., 1903, No. 28, p. 45.
16. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1901, No. 8, p. 282.
17. Gaz. hebdom. de med., 1899, p. 209.
18. Brit. Med. Jour., 1895, ii.
19. Gaz. hebdom. de méd., 1899, p. 137.
20. In Ehrhardt.
21. Fortschr. a. d. Geb. d. Röntgenstrahlen, 1905, v, 51.

bands, and the costo-vertebral articulations were implicated. The articulating processes were fused together. The process seems to have involved principally the articulating processes, including the spinous process. Fraenkel looked on the process as being a primary affection of the joints, that is, the articulating processes, the remaining vertebræ being intact. In the later stages of the disease there is a bony formation, which in some cases is confined to the sides of the vertebra or it may extend around the whole body of the vertebra. Sometimes the arches of a single vertebra or many vertebræ, and also the spinous processes, are involved. He stated that the process is an ossification of the articulations of the joints, and the bony formations are probably secondary, the vertebræ becoming involved by mechanical action.

The cases in the second category are those of von Bechterew,[1] Ascoli,[22] Reuter,[3] Schlesinger,[13] Ehrhardt[23] and Elliott.[11] In von Bechterew's case, in which there was a study of the nervous system as well as of the bones, he believed that the disappearance of the cartilages was due secondarily to the fact that there was a compression of the cartilages, between the neighboring vertebræ, which was caused by the kyphosis. This kyphosis originally depended, according to von Bechterew, on the paralysis of the musculature of the thoracic spine. The compression of the cartilages, he states, naturally causes their gradual disappearance, and finally the surfaces of the vertebræ resting on each other fuse together.

The case of Ascoli[22] was cited by Leri. The articular cartilages were destroyed, and the articular head was the seat of multiple erosions and atrophy. The lesion was the same in the coxo-femoral, and in the knee, and vertebral articulations. There was no ankylosis.

Reuter reported a case from the pathologic museum, in which the articulating processes were united by bony substances, the heads of the ribs with the bodies of the vertebræ, and in which the intervertebral cartilages were for the most part destroyed, being replaced by a spongy, bony substance. The bodies of the vertebræ were markedly rarefied. The ligaments were also ossified. In a second case the entire vertebral column was fused together by means of bony masses, so that the borders of the intervertebral discs could not be seen. A further study revealed the fact that the intervertebral cartilages appeared to be ossified in part, and the new bone formation resembled the substance of the neighboring vertebral body.

In both of these cases Reuter believed that there was a chronic process causing a kyphosis of the vertebral column, bony ankylosis of the joints of the vertebræ and ribs, and the anterior part of the intervertebral cartilages. He assumed that it was a chronic inflammatory process of the joints of the vertebræ similar to that described by Ziegler as arthritis ankylo-poetica, a view held also by Elliott and Siben. In Reuter's cases there was a process in the cartilages analogous to normal bone formation. He acknowledges that this theory has been advanced by Leri, who found ossification of the ligaments, hypertrophy and destruction of the joints, and looked on the process as a healing one. Reuter's preparations did not support such a view, however.

In the eight preparations of spondylitis deformans from the Vienna Museum, Schlesinger distinguished two forms. In one the process was confined to the intervertebral cartilages, which were destroyed, the edges of the neighboring vertebræ being united by supra-cartilaginous exostoses. The bodies of the vertebræ were atrophied, and the small joints and ligaments were involved or remained relatively free.

In the second group, the more frequent form, the transverse process and ligamentous apparatus were chiefly affected. The ligaments were calcified, and there was proliferation of the synovial membrane leading to an ankylosis of the small joints. Siben thinks it doubtful that both of these forms could be considered as types of the same disease.

Ehrhardt examined the skeleton of a case of chronic ankylosing inflammation of the vertebræ in which not only the vertebræ were ankylosed, but the sacroiliac and hip joints also. The intervertebral cartilages had disappeared, a spongy, bony substance having replaced them, and this continued into the substance of the neighboring vertebræ. There were some osteophites present in the lower thoracic region, although nowhere united, as is seen in progressive cases of spondylitis deformans. Neither did these exostoses project into the vertebral canal. The vertebral joints were ankylosed throughout the entire spine, while the spinous processes in the cervical region were exempt. The intervertebral foramina were not narrowed, except at the tenth thoracic vertebra on the left side, and this by an irregular exostosis. This condition, he claims, explains the nervous symptoms better than the old conception of von Bechterew, that they were due to thickening of the meninges.

The ligaments between the ribs and the sternum were unchanged. The process was, according to Ehrhardt, a syndesmoginous synostosis of the entire vertebral joints, with ossification of the long ligaments, the ligamentum flava, and partial ossification of the intervertebral discs.

In Elliott's case the bodies of the vertebræ were normal, while the discs were atrophied and absent anteriorly. There were no bony bridges or exostoses, but there was ossification of the superior spinous ligaments, especially in the lumbar region. The spinous processes were, in places, ankylosed at their distal ends, and there was an ossification of the ligamentum flava. There was some evidence of exostosis in the lumbar region, where the articulating processes were completely ankylosed.

In the third category belong the cases of Forestier,[24] Leri,[2] Siben,[10] Marie and Leri.[17] Forestier examined 66 skeletons in which 17 presented the symptoms of arthritis deformans of the spine. Osteophites were seen on the anterior and lateral surfaces of the bodies of the vertebræ. The vertebræ were involved, and the articulating processes were deformed. The intervertebral foramina were diminished in caliber. The exostoses of the bodies of the vertebræ were very large and increased in size downward.

Siben cited a case with autopsy, in which the shoulder and hip joints, as well as the vertebræ, were involved. The small joints of the vertebræ were ankylosed, and the intervertebral cartilages were also the seat of a secondary change. There was evidence of an inflammatory process, and Siben proposed the name "chronic ankylosing inflammation of the vertebræ" after Strümpell.

22. In Leri.
23. Mitt. a. d. Grenzgeb., d. Med. u. Chir., 1904-5, p. 226.
24. Arch. gén. de méd., 1901, No. 2, p. 158.

In Leri's case the principal lesion consisted of an ossification of the ligaments. There was also a hypertrophy of the articulating processes, which fused together after all traces of the cartilages had disappeared. The lesion was a double one, consisting first of an ossification of the ligaments, and second, hypertrophy and fusion of the articulating extremities.

In a more recent case, reported by Marie and Leri, the findings confirmed the original theories advanced by Leri, i. e., that spondylose rhizomelique consists chiefly of an ossification of the ligaments and intervertebral cartilages, which is accompanied, or preceded by an osseous rarification.

In the cases of Chiari, cited by Reuter, the disease appeared to be principally confined to the ligamentous apparatus in the cervical region and was supposed to be due to polyarthritis rheumatica.

The case of Piogey[25] was evidently one of arthritis deformans, involving the spinal cord, to which may be added the case of McCarthy.

This classification, though more or less artificial, shows that there are some cases in which the process attacks by preference certain parts of the vertebræ. For example, in some the small joints are chiefly, if not exclusively, involved; in others the intervertebral discs suffer the greatest change, while in still others there is involvement of all parts of the vertebræ.

The impression which I have about these cases is that they are all more or less allied so far as their pathologic basis is concerned, though differing perhaps etiologically; and I feel inclined to follow the teaching of those who look on the Marie and von Bechterew types as expressions of one and the same process.

Examination of the nervous system in these cases is quite rare. Von Bechterew claimed a nervous origin for his case. He described a chronic leptomeningitis of the cervical region which compressed the spinal roots, and as a result of which the motor roots were less intensely degenerated than the sensory roots. There was marked degeneration of the white matter in the cervical and upper dorsal regions, especially in the columns of Goll and Burdach. The gray matter was not involved. The change in the roots was found especially in the upper thoracic and lower cervical regions. It was not present in the upper cervical, and was less in the lower thoracic and lumbar regions. There was diffuse degeneration of the anterior pyramidal tracts in the upper thoracic and lower cervical cord. The cells of the spinal ganglion showed degeneration and simple atrophy. The peripheral nerves were slightly degenerated, which von Bechterew believed was due to the degenerated roots. There was some fatty change of the atrophied muscles and disappearance of the striations.

In Leri's case the spinal cord was absolutely normal, except for a slight diminution in the number of the cells of the anterior horns. Leri did not believe that in all cases there is an organic lesion of the nervous system. In one of Reuter's cases the spinal cord was examined, but showed no pathologic change.

In Chiari's case (quoted by Reuter) there was a pachymeningitis in the cervical region. The medulla oblongata showed a certain amount of ascending degeneration. In one of Fraenkel's cases the spinal cord and spinal ganglia were examined, but they appeared to be normal. The muscular bundles were atrophied, and the muscle parenchyma was replaced by fatty tissue, and there was hypertrophy of the perimysium.

The cases of von Bechterew, Chiari and my own were the only instances showing changes in the nervous system, though in Leri's case the cells of the anterior horns were diminished in number. There is, therefore, very little evidence pointing to the nervous origin of these cases. The lesion in my case was slight and could, I believe, be due to pressure from the rigid bony canal, possibly by reason of the narrowed foramen, while the peripheral changes could result from the degeneration of the roots thus occasioned.

The lesions of the nervous system in the cases of Chiari and my own were so slight as hardly to suggest that the bone symptoms were an expression of this lesion. On the contrary, it would appear that the lesions of the nervous system were caused by the bone disease. The nervous symptoms and lesions are not prominent in these cases, and more likely of a secondary nature. A nervous disturbance which would call forth such marked and localized bone changes would be expressed in other marked nervous symptoms. It is improbable that the trophic bony changes would stand out so prominently to the exclusion of other symptoms. I believe, with Leri, that certainly not all these cases have a nervous origin.

The relationship of arthritis deformans to these cases is, I believe, remote. The difference is striking, if the results of the autopsy of the case reported by Piogey[25] are contrasted with the pathologic changes which have been described above. In Piogey's case of multiple articular deformity and general ankylosis the characteristic lesions of chronic arthritis deformans were described. The articulating processes had completely disappeared in places and the surfaces were connected by osteophites and lamellæ. A similar lesion was found in the articulations of the vertebræ. While the metacarpal and scapulohumeral articulations were not ankylosed, there were changes in the cartilages, which were eroded. The recent conclusions of Rimann[26] are interesting in this connection. As a result of a pathologic study of arthritis deformans he claimed that:

1. Macroscopically there was hypertrophy and atrophic change, the former being characterized by proliferative changes in the joints and synovia, and the latter by complete failure of these. Regressive changes in the bones and cartilages were common to both.

2. This change is frequently associated with fibrous metaplasia of the medullary tissues of the bones and cartilages.

3. Metaplastic changes in the atrophic form are more frequent and more extensive and result from a local reaction of the pathologic irritant: the expressions of a general disease of the organism.

4. There are transitional changes between arthritis deformans hypertrophica and atrophica.

The changes in the synovial membranes and the production of osteophites or exostoses, do not appear in the description of the anatomic specimens of the cases under discussion. Ehrhardt calls attention to the fact that the ossification causes changes in the shape of the joints which are dissimilar to those found in arthritis deformans, and Simmonds, Elliott and Siben hold that arthritis deformans of the spine is a different process entirely.

On the other hand, Senator,[27] Saenger,[28] and Auer-

25. Bull. Soc. anat. de Paris, 1898, p. 296.

26. Arb. a. d. path. Inst. zu Berlin, 1906, p. 139.
27. Berl. klin. Wchnschr., 1899, No. 47, p. 1025.
28. München. med. Wchnschr., 1899, No. 47, p. 1509.

bach[29] believed that the disease described by Strümpell is an expression of arthritis deformans, and Schlesinger and Oppenheim do not recognize any difference between arthritis deformans and the other forms of stiffening of the spinal column.

R. Llewellyn Jones[30] believed that no distinction can be made between cases of so-called "poker-back" and the polyarthritic type of arthritis deformans.

While everyone who has seen many cases of arthritis deformans recognizes that the spinal column may also become involved, the whole clinical picture, outside of the pathologic appearance, seems to be entirely different from that presented by cases of ankylosing rigidity of the spinal column.

A CONSIDERATION OF THE COMPENSATORY DIARRHEAS.*

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The literature concerning compensatory diarrhea or, as it has been more often called, vicarious diarrhea, is, contrary to expectation, extremely meager. Reports and experiments pertaining to this subject, published during the last twenty years, with few exceptions deal with but one form of compensatory diarrhea, namely the diarrheal symptom of uremia, and have added very little to our understanding of the phenomenon. Likewise, not one of a goodly number of experienced clinicians with whom I conferred on the question of compensatory diarrhea, knew a particle more than the text-book fact of the possible assumption of vicarious work by the bowels in uremia.

Compensatory diarrhea, however, may supervene in manifold conditions and at various stages of a progressive affection. In exceptional instances only will compensatory diarrhea be encountered as a terminal symptom. It is always symptomatic of arrest or perversion of the function of the skin, lungs, kidneys or the organs of internal secretion. Its immediate effect tends to systemic correction or compensation in the majority of instances and is, therefore, of a salutary nature.

As a matter of fact, most functional diarrheas have a corrective tendency, so far as the bowels themselves are concerned, but they do not call forth a general compensatory effect. Such diarrheas may diminish the intra-abdominal tension and relieve certain phenomena in a mechanical way, or they may prevent further absorption of toxic material of ectogenous or enteric origin. However, it is no vicarious function which the intestines perform by the agency of such diarrheas, and, whether we characterize them as nervous, morning, refrigatory, summer, winter, etc. diarrheas, they are nothing more than the unloading of more or less fluid intestinal contents of non-catabolic production.

Before entering on a consideration of the types of compensatory diarrhea it is necessary that the precise meaning of the term compensatory diarrhea be understood. I would define it as a phenomenon of varying degree and duration, apt to ensue and to return with more or less frequency in the course of systemic deterioration, and characterized by the diarrheal discharge of incompletely or perversely catabolized substances, or by that of catabolic products normally excreted by other emunctories.

This definition excludes, therefore, all the diarrheal eliminations of food residues and the elements elaborated from the ingesta which have not been absorbed, and includes the diarrheal excretion of normal and abnormal products of retrograde tissue metamorphosis. The evacuations in compensatory diarrhea, of course, consist, in addition to the catabolic material, of the accidental contents of the bowels. While by its nature a compensatory diarrhea is primarily always a functional occurrence, the catabolic substances excreted by it may give rise to intestinal lesions which in turn may prolong or intensify the diarrhea, or may occasion more or less severe attacks of watery evacuations of non-compensatory character. Thus, we frequently encounter in the intestines an apparent anatomic substratum of a compensatory diarrhea which, however, is but the immediate result of the perverse elimination of a number of excrementitious substances, and therefore not the cause but the consequence of the assumption of intestinal compensatory activity.

I recognize three general types of compensatory diarrheas, viz:

First, diarrheas which are concomitant with deficient or perverse catabolic processes.

Second, diarrheas which are the consequence of functional or structural disease of certain excretory organs.

Third, diarrheas occurring during the period of physiologic systemic decline.

The first category comprises the diarrheal phenomena which may accompany or are expressive of histolytic and histoenzymic autotoxicoses. To this belong, among others, the specific diarrheas of gout, exophthalmic goiter, Addison's disease and diabetes.

In gouty individuals, especially in those disposed to obesity, there exists as a rule a proclivity to constipation. In the so-called retrocedent and the irregular forms of the affection the paroxysms are often preceded by more or less fecal retention. Now, it is not uncommon that such a paroxysm be aborted, or that even serious interval complications be prevented, if rapid elimination of the offending material takes place by a succession of free bowel discharges. There is no doubt that the permeability of the kidneys is often interfered with in the chronic gouty state—be it on account of a cirrhotic condition of the renal structures or the clogging of the uriniferous tubules with deposits of urates or alloxur bases—and that the eliminative efforts on the part of the system may evince themselves by enforced intestinal activity. Although the urine contains at such times the usual or even an increased amount of alloxur bases, these, nevertheless, occur in the diarrheal feces in appreciably larger than normal quantities.

Since the nucleins, the mother substances of the alloxur bases, when exhibited in the fecal matters are to the greater part body-nucleins, as has been shown by Weintraud,[1] the connection between the abortive diarrhea and the suppressed gouty manifestations is fairly well established.[2]

Clinically, the compensatory activity of the bowels is usually demonstrable in these instances by the great pains and the tenesmus due to the chocolate-colored

29. München. med. Wchnschr., 1900, No. 24, p. 750.
30. Edinburgh Med. Jour., 1906, No. 61, p. 103.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. This author (Verhandlungen d. XIV Congr. f. inn. Medicin, Wiesbaden, 1896), obtained from 100 grams dried meconium, in addition to alloxur bases, from 0.3 to 1.0 gram uric acid. He also points out that alloxur bodies may be demonstrated in the feces after a nuclein-free diet (milk regimen).

2. Hayem found in the villi extensive uratic deposits.

fecal masses laden with nuclein substances, concurring with a diminished amount of urine and a marked decline of vesical irritation and tenesmus.

The peculiar diarrheal attacks of exophthalmic goiter, like the profuse sweatings, must be regarded in the light of efforts at compensation. Furthermore, the excessive secretory activity of the sweat glands and the increased intestinal function, seem not only to compensate for one and the same systemic deficiency, but also to exercise the specific compensatory work alternately during certain stages of the affection. In acute cases of exophthalmic goiter, for instance, the sweatings are particularly apt to be frequent and exuberant while the diarrheal seizures are rather uncommon and of a mild character. In other cases of the malady, periods of sweating alternate with periods of diarrhea, and it is seldom when protracted sweatings occur for a number of times in a day, that a diarrheal attack supervenes.

The compensatory diarrhea of exophthalmic goiter sets in and terminates abruptly, and as a rule is not accompanied by pain. The attack generally lasts from one to three days and there are normally not any more free alvine discharges on each day then there are individual sweating seizures on the diarrhea-free days. The evacuations are softer and decidedly lighter-colored then in gout. If the diarrheal period lasts for five consecutive days or longer structural changes in the intestines will be encountered in the majority of instances. Especially will this be the case when there occur diurnally as many as twelve or more movements. Such pathologic changes are not the cause but the consequence of the compensatory attempt—they are complications keeping up the diarrhea beyond the compensatory needs which means that the patient has entered a stage of active decline. The diarrhea when confined within compensatory limits is nearly always followed by a temporary general improvement.

In Addison's disease two distinct forms of diarrhea may occur; the one form ensuing toward the end of the affection, colliquative in character and accompanied by severe colicky pains and often by melena, may quickly lead to either collapse, or delirium, coma and convulsions. It is entirely dependent on typical anatomic changes in the intestinal solitary follicles and Peyer's patches.

The other form, which is exhibited in but a small proportion of cases, supervenes in the earlier stages of the malady, and appears to be of a compensatory nature. In two exceedingly mild cases of the affection of which the one was under my observation for almost three years, the other for more than five years, there prevailed a moderate diarrhea of mushy consistency at frequent intervals. These diarrheas were usually followed by periods of systemic improvement, viz. greater energy and muscular resistance, diminished languor and increased appetite. Both the patients drew my attention to their almost unfailing general improvement after these diarrheal attacks. In the one patient there occurred partial reduction of pigmentation and the affection assumed a latent character; the other patient, apparently none the worse for the Addison's disease, succumbed to an intercurrent acute infectious disease.

Diarrhea is a frequent phenomenon in diabetes. Its relation to the latter may be twofold—it may be a symptom of the pathologic state underlying the diabetes, or it may be a result or complication of this. Diarrhea as a symptom of the diabetic substratum does not interest us in this consideration for it reflects only a more or less disturbed intestinal digestion. Diarrhea as a complication of diabetes may be due to a long-continued proteid-fat regimen in which case it is but an expression of an alimentary insufficiency, or it may be called forth by the rapid transmission of certain catabolic substances into the intestinal canal in which instance it may compensate for perverse plasmolytic or lipolytic processes. Be this as it may, there are a few indisputable facts in this connection, namely that a compensatory diabetic diarrhea takes its origin in the small intestines, that by its agency sugar may be excreted, and that during its presence and for some time afterward the intensity of the glycosuria becomes markedly diminished or the urine may even be rendered entirely free from sugar.[3]

It is, of course, impossible to explain how and why sugar has found its way into the intestinal tract of an individual just at the period when he is pursuing a rigid carbohydrate-free regimen. For granted that the proteid-fat diet is the cause of the diarrhea (as maintained by some observers), where are the sugar-forming elements coming from, and why is there a synchronous reduction or suspension of the glycosuria?

The occurrence of sugar in the feces, I dare say, should always be considered as of pathologic significance. On no occasion have I detected sugar in the feces of diabetics whose bowels functionated normally—I have never found it in other than diarrheal discharges.

The diarrheal stools in diabetes, however, do not always exhibit sugar, and I do not wish to be understood that the compensatory diarrheas in diabetes are characterized by their contents of sugar. Far from it, for I accept as efforts at compensation in the diabetic state all the diarrheas concurring with a reduction or suspension of the glycosuria, and which are being followed by marked, if but temporary systemic improvement including the dispersion of neuritic and endarteritic pains.

While it is true that diabetic coma is generally ushered in by an acute gastrointestinal disturbance, it is equally true that it may be averted by a diarrhea exerting compensatory function. There would be many more instances of diabetic coma, and it would often ensue much earlier in the course of diabetes, if a diarrhea rendering ineffectual the accumulated toxins did not supervene at the proper time. Of what nature these toxins are, we do not know. However, they do not belong to the acetone group, and the small amount of sugar which may be encountered in the diarrheal evacuations is not of toxic but of mere symptomatic significance. I have observed on more than one occasion that an attack of spontaneous diarrhea setting in during precomatose jactitation has prevented the further development of the coma.

Diarrhea occurring simultaneously with glycosuric augmentation and exacerbation of other diabetic phenomena—conditions not infrequently called forth by lesions in the descending and sigmoidal portions of the colon—of course exhibit no systemic compensatory qualities.

Of the second type of compensatory intestinal activity I will but mention the diarrheas following extensive

3. I have repeatedly observed in diabetics that the urines rendered sugar-free by an attack of diarrhea are apt to exhibit a distinct reaction for acetone and diacetic acid which, soon after cessation of the diarrhea, can no longer be obtained.

burns of the skin and those concomitant with impaired or suppressed renal function.

Injury of a considerable area of the cutaneous surface by burns or scalds always gives rise to autotoxic manifestations. There may be retention of urine and various nervous phenomena as delirium, coma or a maniacal condition. The respiratory gas interchanges by the medium of the skin, compared with those taking place in the lungs, it is true, are diminutive, but a portion of such catabolic products as urea, uric acid, fatty acids, leucin, tyrosin, etc. leaves the organism by way of the integument. This is not the place to discuss whether or not extremely poisonous substances like hydrocyanic acid are generated in grave cases of burning, but it must not be forgotten that tegumentary activity includes also absorption of atmospheric oxygen, and that factors affecting the eliminative qualities of the skin also affect its absorptive properties.

In my book on the autotoxicoses,[4] from which some of the foregoing is quoted, I stated that when the cutaneous structures fail to exhale and discharge effete substances normally eliminated by them, the insufficiency may be overcome by inducing the other emunctories to vicarious activity, and that anything which in the face of diminished tegumentary function stimulates the general excretory work of the organism tends to prevent or to suppress autotoxic manifestations.

Now, inasmuch as renal activity is seriously interfered with in grave cases of burning of the skin, the diarrheas which then invariably supervene have to be looked on as compensatory in character. In many instances, the diarrheal compensation is effective either in averting autotoxic phenomena or, when these are already present, in holding them in check. This fact was brought home to me about eighteen years ago when I treated a two year old child who was terribly scalded over the entire abdomen. When I was summoned the little patient was unconscious, pulseless and the respirations were hardly noticeable. The rectal temperature was 103.5 F., and the bladder contained but a few cubic centimeters of urine. While preparing a hypodermic injection to stimulate cardiorespiratory activity there occurred a copious watery discharge from the bowels. This was soon followed by a second and a third evacuation and (the hypodermic medication having been applied meantime) by an improvement of pulse and respiration. Diarrheal discharges prevailed for the next three or four days after which the diurnal urine was excreted in nearly normal amounts. Every third or fourth day thereafter for a period of about two months there occurred watery evacuations of the bowels and synchronous diminution of the urine. With the proper care, the apparently moribund child fully recovered after some months.

In grave cases of burning there supervenes occasionally a colliquative diarrhea at the foundation of which stands an ulcerative process in some part of the intestines. Such pathologic evacuations, which still further exhaust the already enfeebled organism, of course, have nothing in common with compensatory diarrheas.

Uremic diarrhea, as previously remarked, is the best known of all compensatory diarrheas. It is probably not so frequent an occurrence as are other phenomena of uremic causation, uremic vomiting for instance, nor does it seem to ensue any oftener than some of the compensatory intestinal evacuations of other systemic affections.

Uremic stools do not always present the same general characters; they may have a foul odor in which occasionally the scent of ammonium carbonate is recognizable, while at other times they are inodorous. The more repulsive the odor, the scantier, as a rule, is their amount, and the more frequent the evacuations the less dense is their consistency. They may be mushy, slimy or watery. When small in quantity the feces may be soft while the water together with which they are discharged from the bowels, appears to contain comparatively few fecal particles. The evacuations may exhibit light or dark coloration, not infrequently free mucus and but very rarely some blood.

Specific uremic diarrheas occur much more frequently in chronic than in acute states of uremia, and do not stand in any relationship to ulcerative processes in the intestines. Uremic ulcers of the bowels may occasion grave intestinal phenomena, which are, however, quite different from those of compensatory uremic diarrhea. The evacuations which are due to ulcerative intestinal states are often dysentery-like, very fetid and contain mostly blood and tissue shreds. There is sufficient pathologic evidence that compensatory uremic diarrheas, if continuing for protracted periods, may be accompanied by pronounced congestion and catarrhal exudation of the intestinal mucosa, but that they concur with ulcerative processes in the rarest of instances only. The cardinal etiologic difference between the two forms of uremic diarrhea is, that in the one the ulcerative process is the forerunner of the diarrheal condition[5] and that in the other the diarrhea stands either at the bottom of the morphologic changes of the intestinal mucous membrane, or that it is of synchronous or almost synchronous production with the latter, and the result of the self-same causes.

Compensatory uremic diarrhea is probably due to overstimulation of the intestinal nerves by the hyperosmotic blood carrying the products of normal and probably also of perverted catabolism. Whether this irritation is caused by the altered blood *in toto*, or by the transudation *per se* of one or more of its constituents, we have no means of ascertaining. We know with certainty, however, that the decomposition products of urea give rise to a local irritation of the intestinal mucosa which may be followed by increased peristalsis and diarrhea. The mucosal congestion is probably of simultaneous production with the diarrheal symptom in most instances; this, at least, is the case after infusions of urea and other urinary constituents into the circulation in dogs. It is possible that the hyperosmotic state of the blood causes irritation of the cerebral cortex and that this irritation, transmitted to the intestinal nerves, occasions excessive peristaltic activity. Again, according to Landois,[6] augmented peristalsis may be the re-

4. "The Autotoxicoses, Their Theory, Pathology and Treatment," by Heinrich Stern, Chicago: G. P. Engelhard & Co., 1906, pp. 64, 148 and 149.

5. Fischer (Virchow's Arch. cxxxiv, 134) and Grawitz (Deutsche med. Wchnschr., 1898 No. 20) maintain that uremic ulcers of the intestines are the result of the irritating action of the urinary decomposition products on the mucosa. This may be the case in exceptional instances, ordinarily, however, the amount of ammonium carbonate produced during a given period and remaining in intimate contact with the intestinal mucosa, is too small to produce necrobiotic processes. Be this as it may, the ulceration must precede the discharge by the feces of the material resulting from molecular death. It may be possible that ulcerative conditions develop in the course of a compensatory diarrhea, it is more plausible, however, that in certain instances of uremia the given factors favor the production of intestinal ulcers, and that an ulcerative process antedates the colliquative diarrhea.

6. Die Uraemie, 1891, p. 130.

sult of a strong irritation of the vasomotors by which the blood in the intestines is temporarily diminished.

Experiments pertaining to uremic diarrhea, conducted by Hirschler[7] have shown that among the urinary constituents which may call forth peristalsis, ammonium carbonate and creatin are not only very energetic peripheral but at the same time also central intestinal irritants, while urea, sodium chlorid and creatinin cause intestinal activity solely by means of peripheral stimulation. He further demonstrated that urea and ammonium carbonate may be looked on as etiologic factors of the uremic diarrhea.

That the uremic diarrhea arising in the absence of ulcerative changes is truly compensatory in character there can be little doubt. Uremic vomiting fulfils a similar compensatory mission which is plainly perceptible in certain advanced cases of chronic uremia when the ejected masses exhibit an urinous odor. This odor is due to ammonium carbonate and trimethylamin. Even the burning and dryness of the mouth and trachea of uremic patients Senator[8] ascribes to these irritating decomposition products of the nitrogenous urinary constituents.

The diarrheas with compensatory tendency occurring during the period of physiologic systemic decline form the third category of my classification. Strictly speaking, these diarrheas which comprise the diarrheal occurrences of normal old age, do not form a distinct group for themselves, but belong in part to the first, in part to the second category. Inasmuch, however, as it is not one specific function or organ but the more or less uniform decline of the entire physiologic activity and of the body structures in general which stands at the foundation of the compensatory diarrhea, we are well justified in considering the diarrheas of the aged in a class for themselves.

Old people are particularly prone to diarrheas, which are seemingly not dependent on atmospheric, alimentary, temperamental, occupational and localized enteric causes. These diarrheas become more frequent and pronounced the more the individual advances in age. In a certain proportion of instances free intestinal discharges have to be ascribed to structural and functional deterioration of the entire alimentary tract—these do not therefore concern us at this time—in other instances they are clearly of a compensatory nature, and this is a fact which has not received general recognition.

Women are oftener subject to the diarrheas of old age than men. The cessation of the menses seems to favor a disposition for diarrhea. There are many women who have never been affected with chronic diarrhea before the menopause. While most clinicians declare this diarrhea to be of the "nervous" type, I am forced to contend that a "nervous diarrhea" does not explain anything, and that there must be a retrogressive process at the bottom of these frequent watery evacuations, so long as the digestive and assimilative functions are performed in a normal manner and so long as there is no evidence of a structural alteration in the intestinal canal. What lies nearer then, than to assume that following the cessation of the catamenia there will ensue a hyperosmotic state of the blood and tissue fluids and that transudation therefrom will occur through those membranes which offer the most extended surface and least resistance, and these are the intestinal tissues.

It appears that the intestinal membranes retain a physiologic efficiency for a longer period than most other body structures. This, at least, is the case with their permeability which remains undisturbed, as a rule, long after the other emunctories have lost a great part of their own. It stands to reason therefore, that the intestinal tract of the aged has to perform more or less compensatory service all the time. Thévenon,[9] more than forty years ago, maintained that in health, when the general equilibrium is preserved, the products of the intestinal secretions are always more plentiful in the old than in the adult, that the internal tegument which is less exposed to continual external forces than the skin is physiologically less deteriorated than this, and that it is the tegument of the alimentary tract which compensates for the inactivity of the skin by removing a certain quantity of liquid from the economy.

Although modern research has demonstrated that the external integument is not to any greater extent affected by ectogenous causes than the alimentary tegument, and although the intestines are not internal organs in the sense that they are intrabiontic, Thévenon's observations, which were mostly made at the Salpêtrière, are in the main correct, and may be corroborated by any physician whose practice brings him in contact with old people, especially with the inmates of homes for the aged.

Since there exists a functional connection between the external and internal tegument, it is not surprising that old people, who perspire rarely, are subject to chronic diarrheas. Again, pulmonary exhalation is greatly diminished in old age but the general systemic equilibrium is maintained by the compensatory action of the bowels.

The intestinal canal is beyond doubt the most efficient regulator of the shortcomings and disturbances constantly present or arising in the economy of the old. The compensatory action of the bowels tends to maintain the osmotic equilibrium, that is the interrelation of the physical conditions of the various body fluids, which is essential for the normal performance of the vital processes. This interrelation does not consist in the equality, but in the physiologic dissimilarity of the osmotic conditions in the different fluids of the organism, and it is often only by the increased function of the intestinal membranes that the osmotic equilibrium is preserved and the life of the individual prolonged.

The occurrence of an attack of compensatory diarrhea is nearly always a positive indication that there is no immediate danger for the life of the patient, and that terminal states like fatal dyspnea, convulsions and coma have been averted for the time being. Compensatory diarrhea is mostly a chronic condition, that is, wherever an attack has once ensued it is always apt to return. It is the frequent succession of the individual attacks which puts the stamp of chronicity on the compensatory diarrheas. The frequency of these attacks is rather a favorable omen, and the early establishment of compensatory diarrhea in the presence of perverted catabolism and insufficient excretion through the normal channels, let the prognosis of the case appear less gloomy. The elimination of all or nearly all the excrementitious substances by the intestines is liable to cause irritation and congestion of the mucosa—minor local disturbances which count little if the immediate salutary effect on the entire system be considered.

Of the compensatory diarrheas, not those supervening at a certain period and averting a fatal issue, but those

7. Jubilar-Arbeiten der Schüler Korányi's, Pester Med.-Chir. Presse, 1891, No. 30.

8. Die Erkrankungen der Nieren, 1902.

9. De la Diarrhée chez les Vieillards, Thèse de Paris, 1865.

recurring at frequent intervals and constituting a *habitus diarrhoeicus* and permitting the patient to live in comparative ease, are really the more important. However, while the former are known to the clinician the true nature of the latter is but rarely recognized at the proper time, and a treatment of suppression is instituted in nearly every instance. This interference, of course, is unjustified and irrational as a general rule and may speedily call forth a lethal termination of the case. Naturally, the prognostic outlook of instances thus treated is bad. Here is an example of such a case.

History.—On March 13, 1908, I saw in consultation Mrs. Susan S., aged 47, the mother of three children. The patient had been affected for some years with chronic parenchymatous nephritis, cardiac insufficiency and renal asthma. For the last two or three weeks she had had frequent watery discharges from the bowels, causing her physicians a good deal of anxiety, and concurrent marked diminution of the urinary flow, a fact in which, strangely, they seem not to have been interested. The output of urine for the past forty-two hours amounted to 180 c.c. The patient had received preparations of bismuth, tannin and opium for the diarrheal phenomenon.

Examination.—When I first examined her she was in a precarious condition: delirious, extremely weak, but mentally agitated, very dyspneic, edematous, pulse 124, arterial pressure 70 mg. Hg (Potain).

Treatment and Result.—I recommended discontinuance of all medication and the administration of high rectal saline injection, 1,500 c.c. every three hours. The few drugs which were given to the patient on the following days were mild diuretics. Nothing whatsoever was prescribed for the intestines but the carbohydrate ingesta were considerably reduced. The patient was kept in bed for about one week. The watery evacuations declined in the ratio in which the amount of the urine increased. The moment the kidneys eliminated a normal amount of urine with a fair degree of density the diarrheal discharges ceased on their own account. The patient has had a number of mild diarrheal attacks since for which the same treatment was given. It proved successful on every occasion. At this writing the patient is enjoying comparative freedom from the chronic uremic symptoms at Atlantic City.

Compensatory diarrheas of the type occurring in Graves' disease permit of a fair prognosis, so far as the life of the patient is concerned. Their periodical occurrence may be ushered in by an attack of indigestion, but the benign character of the diarrhea soon evinces itself by the temporary diminution or abatement of a number of distressing phenomena. In my experience, colliquative diarrheas are the exception in exophthalmic goiter, and anatomic changes of a pronounced degree, as large desquamative areas, submucous hemorrhages and ulcerative processes, so frequent in athyroidism and thyroidectomized animals, are very rare in this affection.

This general prognostic axiom concerning the compensatory diarrheas may be put forth. So long as a diarrheal process continues to compensate efficiently for loss of function of the skin, lungs, kidneys and the organs of internal secretion, or, in other words, so long as most of the effete and injurious material is removed from the organism by the medium of the bowels, the patient is in a satisfactory osmotic equilibrium and there is little immediate danger so far as life itself is concerned. On the other hand, the pathologic or artificial suppression of the diarrheal discharges may give occasion to grave symptoms and even cause death, in case the functionally deficient organs have not regained their activity meanwhile.

A true compensatory diarrhea should not be interfered with unless there is sufficient evidence that the localized intestinal irritation and hyperemia unduly prolong the increased peristalsis. Local intestinal treatment should be applied in preference to the ingestion of medicines which have to traverse from ten to twenty-five feet of gut before they reach the seat of the lesion. Rest in bed, application of heat to the abdomen, high rectal or colonic flushings with normal salt solution, and reduction of readily fermentable ingesta is all that is needed in ordinary cases of intestinal hyperirritation and congestion.

Inasmuch as a compensatory diarrhea is symptomatic of the insufficiency of excretory function in general, it indicates the points toward which treatment should be directed. Such treatment should tend to the stimulation of the catabolic processes and the regeneration of the eliminative qualities of the skin, lungs and kidneys.

DISCUSSION.

DR. GEORGE N. JACK, Buffalo: I have happened on a few physiologic respiratory laws not in accord with authoritatively established opinions. 1. Lung tissue has a glandular structure, and performs a glandular function, serving the mortar-like purpose of holding the air tubes, blood vessels and lymphatics in close or functionating approximation. The lungs actually constitute two large irregular lymphangio-pneumatic glands. 2. The elasticity of the lungs is not so pronounced as it has been believed to be, neither does it constitute the expiratory force given it by existing authorities. 3. Lung tissue of itself is a coarse, friable, granular non-elastic tissue of little resistance and easily torn. 4. The only elastic tissue that acts directly on the lung substance is that of the visceral pleura, and the numerous small blood vessels or capillaries that so abundantly ramify through the lung. 5. The lung tissue itself is practically passive during both inspiration and expiration. 6. Owing to the vacuum-like pull between the visceral and parietal pleuræ, the lungs are, as it were, glued to the thoracic walls, from which they can not pull, and they are passively expanded and passively compressed by the action of these walls. 8. The existence of the pulmonary or lung blood pressure in the living subject tends to prevent the lungs from collapsing so readily and completely in the living subject as in the cadaver on admitting atmospheric air between the visceral and parietal pleuræ. 9. The air cells, minus the numerous small blood vessels in their walls, are not elastic, but they are very collapsible. The air cells do not contract to force out the inspired air, but they are made to collapse partially and thus caused to shove the inspired air out.

The normal expiratory partial collapse of the air cells in normal expiration is due to the pressure of the thoracic wall on the air cell, the recoil of the elastic visceral pleura or lung capsule, and capillaries of the air-cell wall, and to the expiratory changes in the pulmonary blood pressure, this blood pressure exerting its influence through the dense capillary network of blood vessels on the walls of the air cells.

Thus a high blood pressure retards the collapsibility of the air cells and favors expiratory dyspnea. The immediate relief from the dyspnea of certain forms of asthma and emphysema following perforation and entrance of air through the thoracic wall is due largely to its anti-blood aspirating effect, and resulting pulmonary blood pressure change.

The apparent elasticity of lung tissue is due to a blood-pressure effect. The absence of blood pressure permits the lungs of the dead to collapse from the atmospheric pressure. The presence of blood pressure in the dense capillary network of blood vessels found on and practically constituting the thin walls of the air cells, is what gives to these cells of blood vessels or air cells an elastic effect in the living functionating lungs.

The general normal inspiratory rise of blood pressure produces an opening effect on the air cell which favors the entrance of air, while the normal expiratory reduction of blood pressure favors a softening of the tubular or vascular air-cell wall and thus favors the expiratory collapse of the blood vessel walled air cell. Lung tissue then performs a glandular function, while the air, air tubes and blood vessels do the respiration.

INVAGINATION OF LIMITED ANNULAR GANGRENE OF THE SMALL BOWEL VERSUS RESECTION.*

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OMAHA.

It is the accepted practice and teaching of surgeons the world over, in cases of gangrenous intestine, to proceed to one of two lines of action: (a) The formation of an artificial anus, and (b) resection. "Whenever possible, i. e., in cases in which the condition of the patient, and the experience and help ready to the surgeon's hand admit of his taking this step, the gangrenous intestine should always be resected" (Jacobson and Rowlands). When the opposite conditions prevail, an artificial anus should be formed with the hope that this will prove a life-saving measure and that at a later operation the continuity of the intestinal canal can be re-established. The increasing experience of late years is tending more and more toward the selection of resection of the gangrenous intestine as against the formation of an artificial anus. This teaching emanates from good authority; it should, however, be accepted with some caution, as it is based on an ability in the selection of cases by men who are also especially skilled in intestinal surgery.

Most of the failures that have fallen to my lot in the management of patients with gangrene of the intestine have followed attempts to carry out the ideal; too much has been done, and this has been my observation of the work of others. It takes good common sense to weigh the pros and cons regarding resection in a given case of gangrene of the intestine. The patient's condition must be fairly good to warrant resection.

The amount of gangrenous intestine a patient can carry and still be in a condition of resistance to admit of a successful resection has never been accurately determined. This amount may vary from one centimeter (⅜ in.) to two meters (6½ ft.) and possibly more, but it is not always the extent of the gangrene that determines the resistance of the patient. A limited gangrene of short duration, accompanied by marked constitutional symptoms, is of graver import than one of an opposite type, i. e., one more extensive in the length of bowel involved, and longer duration of strangulation, but with rather mild constitutional symptoms. A resection in the former case must be made relatively twice as extensive as in the latter, because the mesentery has been invaded by infective products beyond the parts that appear healthy, even if the blood vessels do bleed freely on division.

The object of this paper is to call attention to a simple and safe manner of handling limited annular gangrene of the small intestine without resection, by invagination of the gangrenous bowel. Especially can I commend the procedure in those dangerous cases in which the success of a resection may be in grave doubt and the formation of an artificial anus the only alternative. The technic is applicable to the treatment of traumatisms to the small intestine from contusions and gunshot wounds, the repair of which, because of their peculiarly destructive, bursting character, if accomplished by suture, may so limit the lumen as to result in dangerous stricture or kinking of the bowel.

CASE 1.—*History.*—In September, 1900, a young man was brought to the Clarkson Hospital, Omaha, suffering with a right inguinal hernia which had been strangulated for four days.

Operation.—He was in a condition of such marked collapse that I doubted the propriety of any surgical attempt. However the field of operation was prepared, cocain injected (a general anesthetic was out of the question) and the hernial sac opened. It contained a loop of small intestine, a piece of which 4 cm. (1½ in.) long, was gangrenous, and although soft, was not very friable. The lumen of the bowel above and below the gangrenous ring was about the same, due unquestionably to the two days of stercoraceous vomiting which had preceded the patient's entrance into the hospital. As the man's general condition did not warrant a resection it occurred to me to make an intussusceptum of the gangrenous intestine, invaginating by manipulation sufficiently far so as to have sound tissues to suture at the neck of the intussusception, using for the purpose a circular continuous, sero-muscular stitch of silk. No attempt was made towards a radical cure of the hernia.

Postoperative History.—The usual restorative measures were employed and the patient's condition gradually improved. His bowels moved at the end of twenty-four hours and he made a good recovery. Six months after the operation I received a letter from him saying that he was in excellent health, but that he still had his hernia.

CASE 2.—*History.*—In the autumn of 1907 an elderly man was sent to me by Dr. Hill of Lyons, Neb., suffering with a strangulated, right oblique inguinal hernia. When the man arrived at the Omaha General Hospital the strangulation had been in existence some fifteen hours, but he was in excellent condition.

Operation.—An immediate operation under ether, was done. The bowel was found to be in the same condition as in Case 1, with the exception that the gangrenous ring was not quite so extensive. An intussusception was formed after passing four equidistant sero-muscular, Halstead mattress silk stitches around the circumference of the bowel—i. e., parallel to its long axis. In making these stitches the needle was entered first 1.5 cm. (½ in.) below the gangrenous ring and then at about the same distance above it, and then back again near the point of starting. As the ends of these stitches were pulled on by an assistant, the invagination was aided by grasping the bowel below the stitches, between the index and middle fingers, and pulling upward, while, with the thumb above, pressure was made downward—a method similar to that employed in reducing a paraphymosis. Great gentleness, was, of course, exercised in making this manipulation. After tying the Halstead stitches the line was reinforced by a circular sero-muscular silk stitch. A Ferguson operation for the radical cure of the hernia was then done. The man recovered without complications and has remained well since.

CASE 3.—*History.*—In December, 1907, a boy, aged 16, was accidentally shot in the abdomen with a 0.32 caliber pistol and was operated on by me nine hours later in the Omaha General Hospital.

Operation.—There were twelve perforations of the small bowel, all very easy of repair except one which was so destructive (explosive) in character that to suture it would practically have closed the lumen of the bowel. Neither was it possible to trim the edges of the wound so as to form a rhomboid that could be sutured advantageously. It was a resection and nothing less, unless the injured bowel could be treated as in Cases 1 and 2. The latter was done, about 3.5 cm. (1¼ in.) being invaginated. No complications ensued and the boy made a good recovery.

In a similar case it would be more surgical to destroy, by crushing with an angiotribe forceps, the ragged flaps of the wound before making the intussusception, thus assuring a smooth surface within the bowel at the line of suture. If the extent of gangrene involves more than 5 cm. (2 in.) of the intestine, it would certainly be necessary, before making the invagination, to deal with the mesentery by freeing it from the bowel and resecting it or not as the condition indicated.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

There are possibilities of usefulness of the technic described in this paper by extending its employment to the treatment of annular strictures of the intestines, small and large. These strictures can be removed *per vias naturales* after devitalizing the bowel above and below with an angiotribe forceps and invaginating the devitalized diseased structures into the bowel to be passed off as an intussusceptum. There are also other possibilities along the same line, for example, in relation to resections.

There may be mechanical contraindications to the technic offered; (a) when a loop of gangrenous intestine longer than 10 to 12 cm. (4 or 4½ in.) would appear rather difficult to manipulate, or (b) when the bowel is thick and edematous immediately above the gangrene, or very much contracted below it, the difficulties of invagination may be insurmountable. However, the distended bowel above can be reduced by employing Monk's method of using a glass tube to relieve the distention.

I am sure that a dead piece of intestine may be invaginated upward, and if a properly reinforced through-and-through continuous silk suture is employed, making the neck of the intussusception broad and strong, there will be no giving way, but the current in the intestinal tube will pass naturally with the sloughing off of the intussusceptum. Senn's experimental work in this form of invagination carries no contradiction to the above statement.

I make no pretense to being the first surgeon to invaginate a gangrenous loop of bowel when otherwise a resection or the establishment of an artificial anus must have been done. It was original in so far as I, personally, was concerned, and I had been led to believe from the best obtainable sources that the procedure was new. Alas, there is little new under the sun. Professional medical bibliographers and others had failed to find references to the technic, but I discovered in my own library, after this paper was written, that Guinard reported, at the French Congress of Surgery in 1895, a case of gangrene of the small intestine in which he successfully invaginated 9 cm. (3½ in.)—and many practical surgeons may have done similar work.

My own experience with this technic is so limited that I do not feel warranted in saying very much for it, but I am convinced, nevertheless, that I could have applied it with advantage to my patients in many resections for gangrene and other lesions of the intestine which I have done since my first application of the principle in 1900.

DISCUSSION.

DR. ARCHIBALD MACLAREN, St. Paul, Minn.: It seems to me that Dr. Summers' suggestion is excellent and that it opens a field of great usefulness, especially the suggestion of the use of the angiotribe. Dr. Lund says that in Boston they have pursued this course in a number of instances, but never published the work.

DR. L. L. MCARTHUR, Chicago: Dr. Summers' paper describes an extension of a method which both Dr. Bevan and myself have been utilizing in cases of gangrene of the bowel when small in extent and involving only a section of about one-third of the circumference of the bowel, as may be found in the gangrene which accompanies Littré's hernia, simply invaginating that segment of the bowel. Dr. Summers has shown that it is possible to go further and introduce into the bowel a gangrenous mass 4 to 8 c.c. in length, but smaller than an intussusception, and get good results by the sloughing off of the mass. I believe that he has added to our armamentarium very decidedly.

RECENT STUDIES ON THE CIRCULATION AND THEIR IMPORTANCE TO THE PRACTICE OF MEDICINE.*

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The contributions to our study of the circulation during the past few years have been so numerous that I shall be able to deal only with a few of those aspects in which I have been most directly interested and which I feel are of practical importance; namely, the relation of arrhythmias and of the velocity coefficient to treatment and the studies on the volume and tonicity of the ventricles.

One of the most interesting and important results of physiologic study has been the physiologic analysis of the irregular pulses, which has led us to divide them into four groups:[1]

THE FOUR GROUPS OF IRREGULAR PULSES.

First, those which, either associated with certain phases of respiration or with meningitis, or in children, neurasthenics or convalescents from febrile diseases, are of neurogenic origin. (Fig. 1.) These are not associated with any cardiac disturbance, disappear temporarily under atropin, sometimes permanently disappear under general "tonic" treatment, hygienic measures and the administration of strychnin.

The second group, due to diminished contractility, is shown in the pulsus alternans in which, though the rate is regular, each alternate beat is small. This is most common in very rapid pulses, and as Mackenzie has shown, also in some cases of angina pectoris. It always shows that the heart is beating too fast and that its strength is insufficient, and hence if the condition continues more than a few hours it may be considered as a symptomatic indication for digitalis or strophanthin intravenously.

Thirdly, we have to deal with the three varieties of heart block (Fig. 2) at the various sites along that inverted Y-shaped path of Purkinje fibers—the sino-auricular blocks, the auriculo-ventricular blocks, and the blocks between the ventricles. Of the latter we know but little, and Doctor Hewlett[2] has told what we do know. The sino-auricular block (Fig. 2, 1) as we know it, especially in the cases described by Dr. Hewlett and myself, is always functional, and since it is often brought on by digitalis it need not be added that in this digitalis is absolutely contraindicated. The same applies in the auriculo-ventricular blocks (Fig. 2, 2 and 3), whether organic as in Adams-Stokes disease, or due to myocardial weakness and vagal stimulation as in the post-influenzal or post-diphtheric conditions or due to

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. For a more complete discussion of the cardiac arrhythmias consult:

Wenckebach, K. F.: Die Arhythmie als Ausdruck bestimmter Functionstörungen des Herzens, Leipzic, 1903.

Mackenzie, James: The Study of the Pulse and Movements of the Heart, London, 1903; New Methods of Studying Affections of the Heart, Brit. Med. Jour., 1905, i, 519, 587, 702, 759, 812.

Hirschfelder, A. D.: Graphic Methods in the Study of Cardiac Diseases, Am. Jour. Med. Sc., 1906, cxxxii, 378.

Dock, G: Recent Advances in the Study of Heart Disease, Wisconsin Med. Jour., August, 1907.

Hewlett, A. W.: The Common Cardiac Arrhythmias and their Clinical Significance, Internat. Clin., 1907, series 17, iv, 47.

2. Hewlett, A. W.: Clinical Observations on Absolutely Irregular Hearts, paper presented at this session of the Section on Practice of Medicine.

pressure of tumors on the vagus, as in one case which I recently examined.

Fourthly, we have the group of irregularities due to the abnormal impulses, extrasystoles, which may arise either in the auricles, the ventricles, or the bundle of His (Fig. 3). The latter group is diagnosed, I may add without absolute proof having been advanced, when the conduction time is shorter than normal. Ventricular extrasystoles are often brought about by inability of the heart to empty itself. Regularity is then restored by

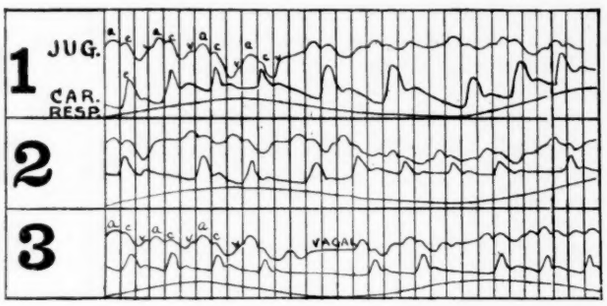


Fig. 1.—Diagrammatic. Showing the neurogenic forms of irregularity. 1. The exaggerated normal type. 2. The pulsus paradoxus. 3. Mackenzie's youthful type. Upper line, pulse in jugular vein. a = wave due to auricular systole; c = wave at the beginning of ventricular systole; v = wave at end of ventricular systole. Divisions represent 1/5 second.

digitalis. At other times there is too great irritability, and in this case digitalis would only serve to increase the arrhythmia. Auricular extrasystoles may be a result of disturbed origination of impulses, or of obstruction to the emptying of a vigorous auricle, as in mitral stenosis; as a rule they do not disappear under digitalis or atropin, but sometimes a certain amount of benefit may result from a simultaneous increase in the tone of the heart muscle.

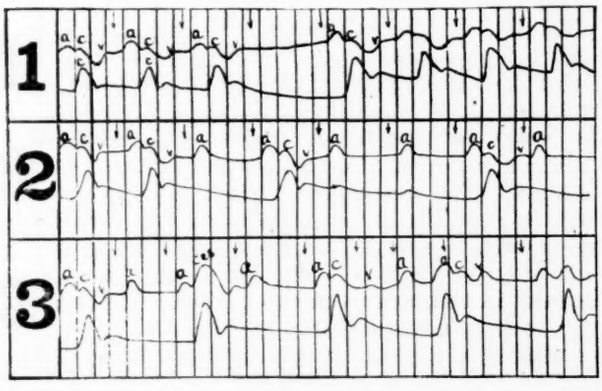


Fig. 2.—Partial and complete heart blocks. 1, sino-auricular; 2, partial auriculo-ventricular; 3, complete auriculo-ventricular block. Arrows indicated probable impulses arising at the sinus. Upper line, venous pulse in jugular vein. Lower line, carotid pulse.

PAROXYSMAL TACHYCARDIA.

In paroxysmal tachycardia we also have to deal with peculiar sudden changes in rate, almost doubling and almost halving, sometimes associated with irregularity in the transitional stages but usually perfectly regular. The doubling and halving is sometimes due to the passing on and off of an auriculo-ventricular block; in one of my cases it appeared to be a sino-auricular block. I have also been able to produce it experimentally by faradizing the auricles into a state of fibrillation (Fig. 4). Under these conditions the ventricles would suddenly pass into a paroxysm of rapid rhythms, sometimes regular, sometimes slightly irregular.[3] The rhythm was then just less than double the original rate, but would rise suddenly from 120 to 213 a minute or thereabouts and drop at once to the regular rate either on vagus stimulation just as a paroxysm of tachycardia may stop; or the rapid rhythm might be resumed after the vagus stimulation had ceased and later fall spontaneously. As irritability increases, as by successive stimulation, the ease with which these paroxysms are brought on increases, as does also their duration. But even granting that this phenomenon resembles paroxysmal tachycardia, the treatment remains to be worked out further. For in that disease digitalis, strophanthus, intravenous strophanthin, strychnin, atropin, ice-bags, pressure on the vagus, and all the well-known cardiac stimulants have been known to fail, though sometimes useful.

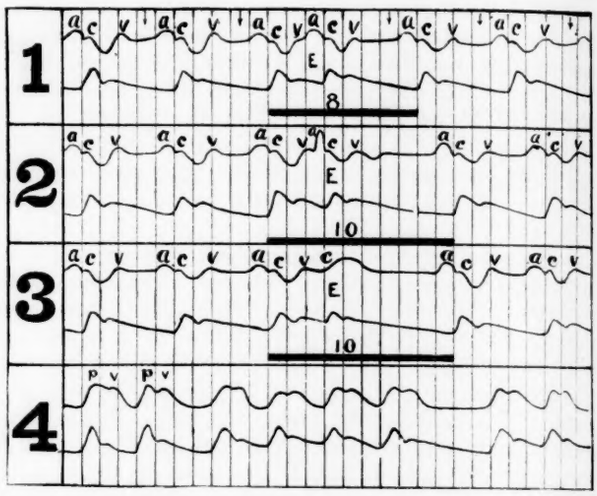


Fig. 3.—Extrasystoles, and auricular paralysis. Underlined portion indicates duration of systole + extrasystole + pause. 1, auricular extrasystole; 2, auriculoventricular extrasystole; 3, ventricular extrasystole; 4, auricular paralysis.

VELOCITY OF BLOOD FLOW.

I shall now discuss the velocity of blood flow in disease. In 1904 Erlanger and Hooker[4] demonstrated that the velocity of flow per unit of time is more or less proportional to the product of pulse pressure by pulse rate. By pulse pressure is meant the variation in pressure due to the pulse beat, and hence the difference between maximal and minimal pressure. This product has no absolute value, but has a relative value as a standard for comparison in the same individual. Erlanger and Hooker found it of importance in determining the relation of blood flow to cyclic albuminuria but made no observations on patients. In 1905, I followed the blood pressure in a number of heart cases over a considerable period of time, and found that in them the general condition seemed to improve when the velocity

3. Von Ziemmsen (Studien über die Bewegungsvorgänge am menschlichen Herzen, sowie über die mechanische und elektrische Erregbarkeit des Herzens und des Nervus Phrenicus, Deutsch. Arch. f. klin. Med., 1882, xxx, 270) produced exactly similar paroxysms of tachycardia by galvanization, but not by faradization, over the precordium of a subject in which the chest wall had been removed along with chondroma of the ribs.

4. Erlanger, J. and Hooker, D. R.: An Experimental Study of Blood Pressure and Pulse Pressure in Man, Johns Hopkins Hosp. Rep., 1904, xii, 145.

of flow (as shown by product of pulse pressure by pulse rate) increased and to become worse when it decreased, so that the patient's condition usually followed the velocity curve as shown in Figure 5.

This observation, which was unpublished, has since been confirmed by the very long and careful studies of Brun Fellner,[5] Albert Fraenkel,[6] Lust,[7] and others, who show that in general digitalis and strophanthin increase the product. This is unquestionably true, but in the case just quoted the heart muscle was too far weakened to give this response until the digitalis was combined with nitroglycerin, when the velocity was greatly increased. In many cases the change in the velocity coefficient precedes the systemic change for some time, and may therefore be of value in predicting and in warding off impending trouble, so that in many cases it may furnish a good guide for treatment, especially in bed patients.[8]

TONICITY OF THE HEART MUSCLE.

Another line of investigation which is yielding promising results is the investigation of tonicity of the heart muscle. It has long been certain that important functional changes go on in the heart without manifesting themselves either on the blood pressure or the arterial or venous pulse curve, and that these variations are the preliminary steps which determine the later changes. Many of these are due to changes in tonicity of the heart muscle. The importance of a systematic study of cardiac tonicity in mammals was emphasized by James Mackenzie in 1904, and also by Gibson and Clifford Albutt, but so far as I am aware no experimental investigation has as yet been published. The subject was therefore studied experimentally by Dr. Cameron at my suggestion and under my direction during the past winter. The results are now being presented as a Doctor thesis at the University of Edinburgh, and as they will be published in detail within the next few months I shall merely describe his general methods and conclusions. Tonicity may be defined as the tendency of the muscle to resist stretching or overfilling of the heart when the walls are relaxed in diastole and changes in tonicity are shown by changes in ventricular volume at the end of diastole.

The changes in volume of the ventricles were studied by inserting the ventricles into one of Yandell Henderson's cardiac plethysmographs, so that it fitted air-tight about the auriculo-ventricular groove, and connecting this with a large recording tambour. For convenience the tambour was inverted so that upstrokes record decrease in volume, downstrokes increase. The volume at the end of diastole indicates cardiac tonicity (at least when the change of rate, etc., is allowed for), that at the end of systole shows the amount of blood residual within the ventricle. These are relative not absolute terms. The diagram (Fig. 6) shows the relation of the curve to changes in tonicity, and especially that the latter is independent of systolic output. Other things being equal, an increased tonicity was accompanied by diminution in the volume of residual blood in the ventricle at the end of systole, while decreased tonicity was accompanied by accumulation of it, even to several times the amount thrown out at each systole. Such an accumulation as a rule gave rise to no irregularities nor outward manifestation other than more dilatation (Fig. 7).

Dr. Cameron found that practically all the drugs which are cardiac stimulants—digitalis, strophanthus, nitroglycerin and strychnin—increase cardiac tone to a marked degree. Adrenalin was the only one with which it was definitely diminished. The diminution in tonicity due to aconite was only about what would correspond to the same stimulation of the vagus. These results are especially interesting in the case of strychnin, since this

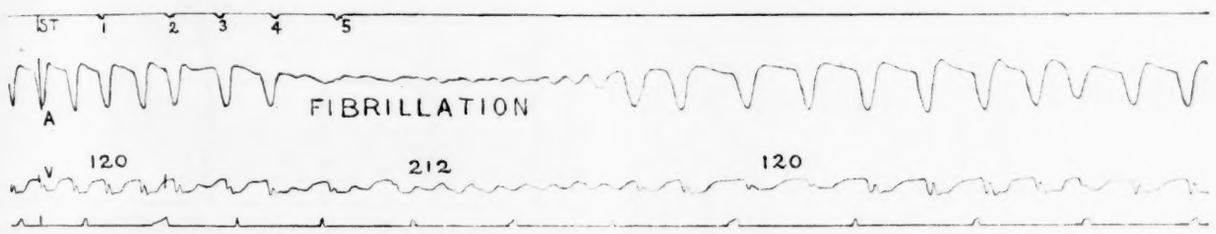


Fig. 4.—Tracing from heart of dog, showing suddenly beginning and suddenly ceasing tachycardia, brought on by faradic stimulation of the auricle A at 1, 2, 3, 4 and 5. V = ventricular contractions. Time in seconds.

effect may be obtained from doses so small that there is absolutely no effect on the mean blood pressure. Many text-books on pharmacology have stated that strychnin has no direct action on the heart, and the German writers do not include it at all in their treatment of cardiac diseases, but these studies of Cameron place the observations of American and English clinicians once more on an experimental basis.

The importance of preserving a proper degree of cardiac tone is shown also on subjecting the heart to a slight strain, as by clamping the thoracic aorta. If the tonicity of the heart muscle is good (Fig. 8, 1) there is a momentary dilatation and then the heart gradually pumps itself out and gets smaller and smaller until it is soon of even smaller volume than before the strain was put on it. Whereas, if the tonicity is low (Fig. 8, 2), the heart dilates and remains dilated; and a dilated heart works at a disadvantage, so that this may lead to further overstrain. If the heart is in very poor condition (Fig. 8, 3), the single strain may lead only to progressing dilatation and finally to death.

LABORATORY FINDINGS APPLIED IN THERAPEUTICS.

These experiments illustrate what goes on in muscular exertion and what we use in the Schott treatment. We do not give these exercises to too weakened patients, if we did it would still further depress their tonicity and make them worse. This sometimes actually happens

5. Fellner, B.: Klinische Beobachtungen über den Wert der Bestimmung der wahren Pulzgrösse (Pulsdruckmessung) bei Herz- und Nierenkranken, Deutsch. Arch. f. klin. Med., 1907, lxxxviii, 1.

6. Fraenkel, Albert, and Schwarz: Ueber intravenöse Strophanthintherapie bei Herzkranken, Arch. f. exper. Pathol. u. Pharmakol., 1907, lvii, 79.

7. Lust: Klinische Erfahrungen mit der intravenösen Strophanthintherapie, Deutsch. Arch. f. klin. Med., 1908, xcii, 282.

8. Since this article was written T. C. Janeway has published notes of a case in which the improvement bore no relation whatever to the velocity coefficient (The Use and Abuse of Digitalis, Am. Jour. Med. Sc., 1908, cxxxv, 781).

when we are over-zealous in the treatment. But we aim to put a very mild strain on the heart, one that it readily overcomes, and one that, just as in our dog's heart, increases the tonicity and leaves the heart smaller than before, with less residual blood and in better condition to resist another strain.

Cameron found, moreover, that the slowing of the circulation, the accumulation of CO_2 in the blood, and the slightest asphyxia caused a marked diminution in tonicity, so that in any cardiac overstrain we have instituted a vicious circle:

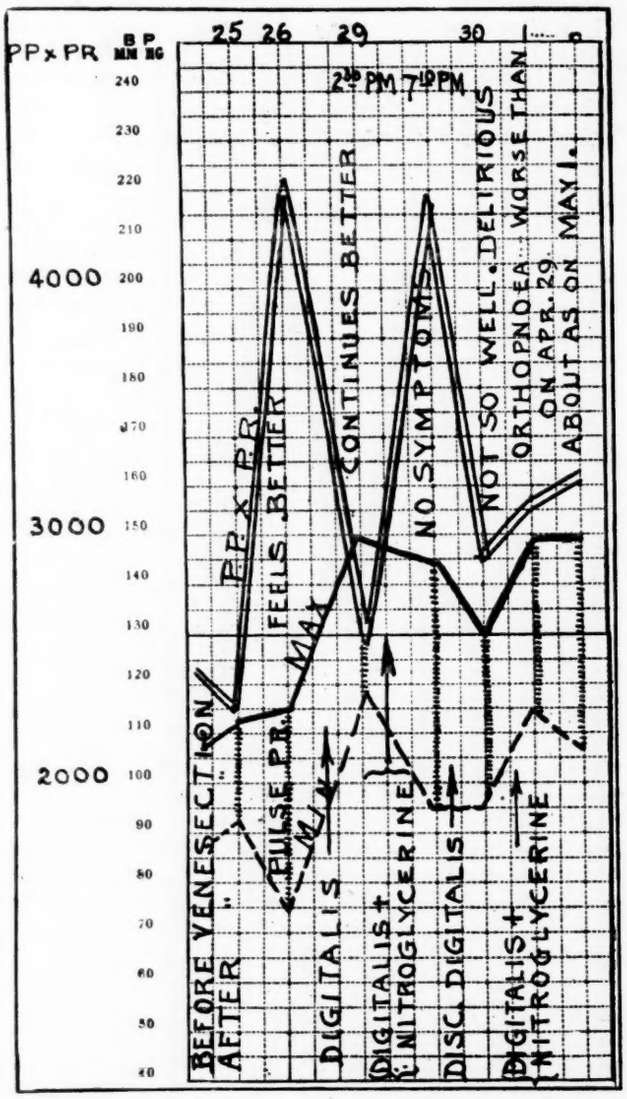
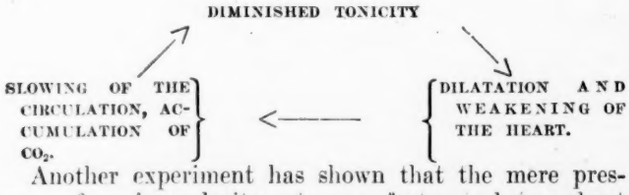
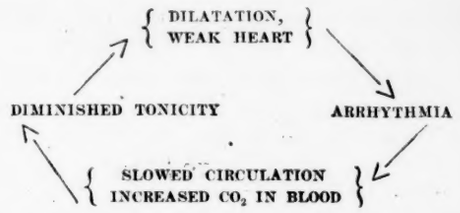


Fig. 5.—Showing course of symptoms in a case of myocarditis. = Pulse pressure × pulse rate. — Maximal pressure. - - - Minimal pressure. .... Pulse pressure.



Another experiment has shown that the mere presence of an irregularity acts as a factor to bring about dilatation, partly by slowing the circulation and lowering tonus, partly by increasing venous pressure, so that as far as the permanent arrhythmias are concerned we have another vicious circle:



There still remain several subjects on which I should like to touch, namely, the importance of the tonicity of the musculature about the mitral and tricuspid valves for the prevention of leaks, which can be demonstrated by inserting a cannula into the aorta of a sheep's heart, filling the ventricle under pressure, and observing the leak; throwing the muscle into heat rigor by boiling and then proving that the leak no longer appears.

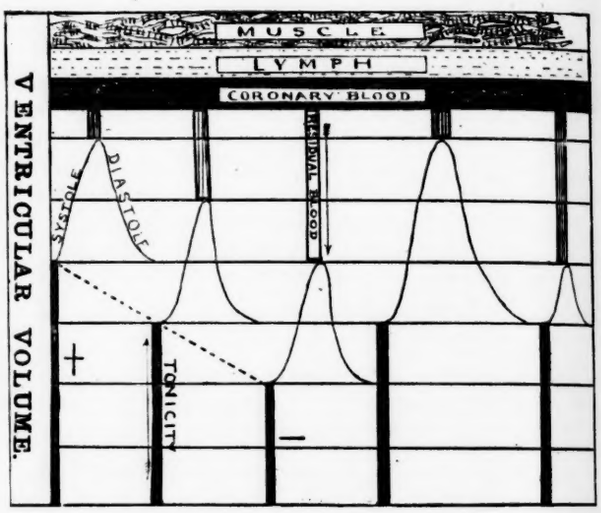


Fig. 6.—Diagram illustrating changes in tonicity and systolic output, showing elements which enter into the total volume of the ventricles and variations in tonicity with and without variations in systolic output. Length of heavy black line indicates degree of tonicity; that of shaded line amount of residual blood.

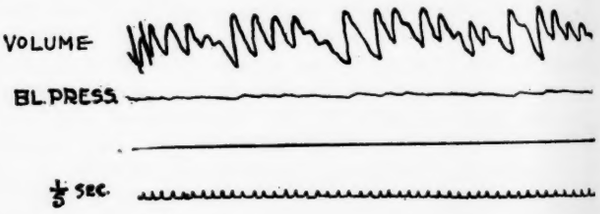


Fig 7.—Volume curve in experimental irregularity. Showing the tendency to dilatation (downstrokes).

RELATION OF LEAKAGE TO MURMUR.

Secondly, I should like to call attention to the importance of obtaining some idea not only of the noise made by the leak but also of the amount of leakage that actually occurs. In the experiments done with Dr. H. A. Stewart[9] on aortic insufficiency, we always found that a leak at the aortic orifice meant fall in diastolic pressure with increased pulse pressure. These leaks were sometimes almost completely plugged by fibrin, leaving only small channels for the regurgitant eddies. The murmur remained; the diastolic pressure returned to normal; and the leak was, for practical purposes, gone. As you may notice in Figure 9, the analogy with the

9. Stewart, H. A.: Experimental and Clinical Investigation of the Pulse and Blood Pressure Changes in Aortic Insufficiency, Arch. Int. Med., 1908, i, 102

vocal cords, a small leak with narrow orifice may give a loud murmur, while a very wide one like the vocal cords of quiet breathing may give none.

In presenting these facts and questions it has been my aim not only to present them as facts, no doubt familiar to many, but particularly with a view toward arousing or increasing interest in the experimental side, not merely of pathology and of abstract pharmacology, but of practical therapy; as a plea for the habit of carrying the problems of the bedside to the laboratory, from the patient direct to the animal, and then at once back again for verification on the patient.

DISCUSSION.

DR. WILLIAM S. THAYER, Baltimore: The pulsus alterans, instances of which spring up occasionally and last a considerable length of time, is not a common condition. I have seen two cases, one of which was particularly interesting. This was the case of a patient with myocarditis who was under my observation for several months. She had long periods of irregular heart action, pulsus alterans, and presented all the evidences of grave changes in the heart muscle. Müller

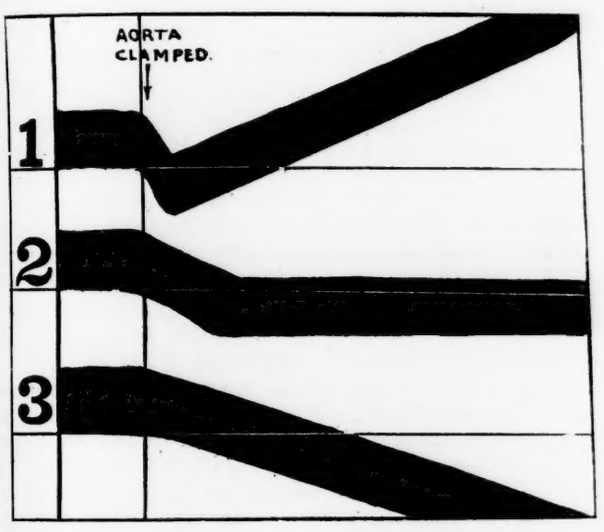


Fig. 8.—Showing effect of clamping the aorta on the volume of the heart. Diagrammatic, after experiments done with Dr. Cameron. 1, Tonicity increased by strain; 2, low tonicity, permanent dilatation; 3, very low, complete heart failure.

in the *Archives of Internal Medicine* has written on the subject of the extra systole. I can not help feeling that a great many instances of extra systole occur in young individuals; and it is among these young individuals that not such a serious view of the condition is taken as is warranted.

DR. G. W. MCCASKEY, Fort Wayne, Ind.: It is of great value to the clinician to estimate the pulse pressure by the difference between the systolic and diastolic pressure, as shown by Erlanger's apparatus. This represents the actual work done by the heart, and it indicates in a general way the working efficiency of the heart. If the systolic pressure, for example, is 200 and the diastolic pressure 175 or 180, representing a difference of 25 or 20—this being the pulse pressure—the condition is much more serious than the same systolic pressure with a diastolic pressure 35 or 40 mm. less. The pulse pressure represents the work the heart is doing. All this rests on well recognized physical laws and has its application in clinical medicine. The result gives us Erlanger's velocity coefficient, which represents still more accurately the work the heart is doing. This does not express the volume of blood the heart is forcing through the circulatory apparatus in units of any sort, but is simply an arbitrary datum available only for purposes of comparison, but certainly has a very considerable clinical value. One of the results of the work that is being done in this line to-day is the diagnostic and prognostic value obtained by the administration of drugs of the digitalis group. I have come to regard the effect of the early administration of digitalis of the highest diagnostic and prognostic value in some obscure cases of arrhythmia. If the giving of digitalis produces a bad effect on the heart I am inclined to believe that perhaps there are initial changes going on in the bundle of His which ultimately will lead to heart-block.

DR. ARTHUR D. HIRSCHFELDER, Baltimore: Extra systole is something of extreme importance. The only physical factors known at the present time to bring about extra systole are those to which I have just called attention. It is impossible to determine in an individual clinical case exactly what influences are at work. Therefore I believe that the only thing one can do under these conditions is, as Dr. McCaskey has suggested, to administer digitalis early when there seems to be a physiologic indication for it, in order to determine whether the arrhythmia is improved by it or not; in making this determination the action of the drug must be most carefully watched. It is also possible to use strophanthus in this condition if the preparation is a good one. It is a little milder and quicker in its action but perhaps more transitory. With regard to the velocity coefficient I am sorry that I am even more conservative than Dr. McCaskey in advocating it as an index for treatment on account of the exceptions which have been mentioned. There is need of further investigations along these same lines before anything of great value can accrue from them. With regard to the value of the estimation of pulse pressure and high tension, as for example a systolic pressure of 200 and a diastolic pressure of 140, as quoted by Dr. McCaskey, I wish to call attention to the fact the pulse pressure naturally increases where there exist conditions which cause a high systolic pressure. The same amount of systolic output should give rise to greater variations in the pressure at high rather than at low pressure. Consequently one must allow for that to a certain extent. Dawson of Baltimore has approximately reached that conclusion, dividing the pulse pressure by the mean pressure. One must make allowance for and bear continually in mind those factors which produce and perpetuate high pressures.

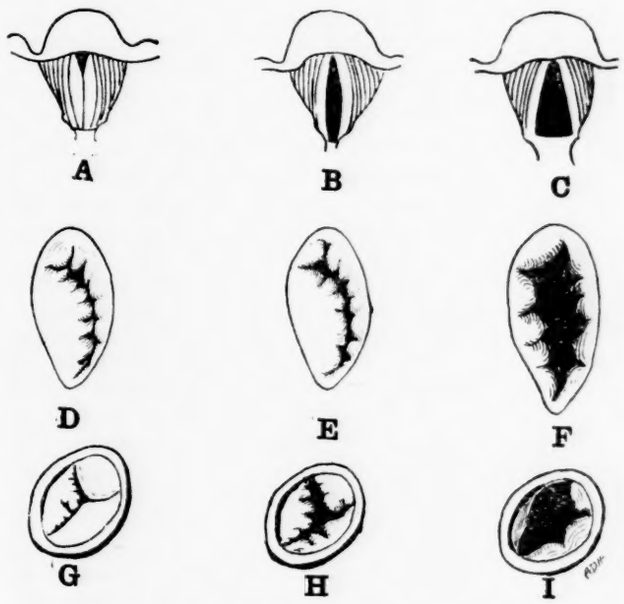


Fig. 9.—Showing analogy of positions of vocal cords for voice production and positions of heart values in the production of murmurs. Upper line, showing larynx, with (A) vocal cords in position for high head note; (B) for low chest note; (C) for quiet breathing. Middle and lower lines showing auriculoventricular (D, E, F) and semilunar (G, H, I) valves with beats increasing from D, G to F, I.

A CLINICAL METHOD FOR THE DETERMINATION OF THE SODIUM CHLORID CONTENT OF THE BLOOD AND OTHER BODY FLUIDS.*

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The object of this paper is to present a practical working method for the determination of the sodium chlorid content of the blood and other body fluids, together with the results obtained by this method in a variety of disease processes. Especial interest attaches to such a study because of the questions that have been raised during the past few years relative to chlorid retention and excretion in certain acute and chronic maladies.

The amount of sodium chlorid in the blood of normal individuals is generally estimated as being about 0.5 per cent. (v. Jaksch). In the oft-published tables of C. Schmidt[1] the proportion of sodium chlorid in healthy human blood is given as 0.5546 per cent., while Biernacki[2] gives lower values and finds normal variations between 0.441 and 0.468 per cent. The discrepancy in these findings probably depends on the fact that analyses of the ash of the blood are among the most difficult in chemistry for the reason that certain substances, including chlorin, are easily volatilized if too much heat is applied. Furthermore, it is to be remembered that practically all the sodium chlorid resides in the plasma, while very little, if any, is present in the blood corpuscles. Hence analyses of blood obtained postmortem after more or less clotting has occurred are absolutely unreliable, and the error inherent in such a method of procedure is responsible for the bizarre findings in certain recent investigations of the blood in diseased conditions of the body, as I shall presently show.

The method of sodium chlorid determination which forms the basis of this paper is one which is applicable in the routine bedside study of the patient, and one that can be easily carried out by any one versed in the workings of the regular clinical laboratory. It is an adaptation of the well-known Salkowski-Volhard method of the quantitative estimation of the chlorids in the urine and gastric contents. There would seem to be no reason why this procedure, as a clinical method, should not apply in the case of the blood, provided that the proteid constituents be first removed so that the silver nitrate used will not combine with these to form silver albuminates. In order to rid the blood of the albumins it was decided to precipitate and oxidize these bodies by nitric acid as a preliminary step. After this the method departs in no way from the routine procedure as used in the case of the urine. The results of the first experiments gave values for sodium chlorid in agreement with those of previous investigators, and further work showed variations which are exceedingly slight in degree and well within the limits of error of any clinical method.

METHOD OF OBTAINING THE BLOOD.

The requisite amount of blood is secured from one of the larger veins at the bend of the elbow by means of an aspirating syringe. A simple form of apparatus consists of a piece of glass tubing, diameter 10 mm., with tapering ends. To one end is attached a short piece of rubber tubing connected with a large-sized hypodermic needle; to the other is attached rubber tubing with a mouthpiece such as is used with the ordinary blood-counting pipette. This latter end of the glass tube is made large enough to readily admit the stem of a regular 1 c.c. volumetric pipette. This apparatus is easily constructed and is similar to one described in Ewing's "Clinical Pathology of the Blood,"[3] except that the needle is not attached by a ground-glass connection.

The skin on the inner surface of the elbow is thoroughly cleaned with alcohol and sterile pledgets, and the apparatus—with the exception of the long rubber tubing—is boiled. After carefully blowing out all the contained water the needle is introduced into the vein through the skin and the blood aspirated by suction. About 2 or 3 c.c. of blood are drawn into the glass tube, the needle is withdrawn, the rubber tubing connecting the needle with the syringe is compressed, the tubing leading to the mouthpiece is disconnected from the syringe, the volumetric pipette is introduced into the syringe and 1 c.c. of blood is measured out. The whole procedure can be done carefully and rapidly before there is any tendency to clotting.

METHOD OF THE CHLORID DETERMINATION.

One cubic centimeter of blood, exactly measured as above described, is placed in 25 c.c. of nitric acid solution (concentrated nitric acid, C. P. 1 part, distilled water 3 parts). The volumetric pipette is rinsed out four or five times with distilled water and the washings added to the blood and nitric acid mixture. The color varies from reddish-brown to chocolate-brown, varying very appreciably with the hemoglobin content of the blood. The albumin bodies of the blood are at once precipitated and oxidized by the nitric acid, while the sodium chlorid content is unaffected.

To this solution are added exactly 5 c.c. tenth-normal silver nitrate solution. This is well shaken, allowed to stand ten minutes, and then put in a 50 c.c. graduated flask and the amount made up to the 50 c.c. mark with distilled water. This is then poured into a clean beaker, thoroughly mixed, and 25 c.c. are filtered into a graduated flask of that capacity. This filtrate, which is almost colorless, is used for the titration.

Ten drops of a saturated aqueous solution of ferric ammonium sulphate are added to the filtrate as an indicator. Into a burette, graduated in 1-20 c.c., is placed a twentieth-normal solution of ammonium sulphocyanid. Titration is then carried on until every trace of silver is precipitated, when the sulphocyanid combines with the ferric salt to form the reddish-brown ferric sulphocyanid. The end reaction is very sharp and the titration is stopped at the first tinge of color.

The calculation is very simple. The number of cubic centimeters of the sulphocyanid solution required is deducted from the volume of silver nitrate solution used (5 c.c.) and the difference, in the terms of NaCl, represents the amount of chlorid, as NaCl, in one cubic centimeter of blood. $1 \text{ c.c.} \frac{N}{10} \text{AgNO}_3 = 0.00585 \text{ gm. NaCl.}$

(The calculation requires that the number of cubic centimeters of sulphocyanid solution be multiplied by 2, as only 25 c.c. of the filtrate were used and not the entire 50 c.c., and this sum is then to be divided by 2 for the reason that 2 c.c. of twentieth-normal sulphocyanid solu-

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. American Text-Book of Physiology, ed. 2, i, 50.

2. Untersuchungen über die chemische Blutbeschaffenheit bei pathologischen Zuständen, Ztschr. f. klin., Med., 1894, xxiv, 460.

3. Second edition, page 67.

tion is equal to 1 c.c. tenth-normal silver nitrate solution.) In my experiments I made up an approximately twentieth-normal sulphocyanid solution, and then determined the exact value of 1 c.c. of this solution in terms of silver nitrate and sodium chlorid.

In the following report of cases attempt was made to study a variety of conditions which might prove to be of interest from the possible changes of the sodium chlorid content of the blood. In each case the amount of sodium chlorid in 1 c.c. of blood was determined, but for comparison with previous results in which a weighed quantity of blood was used, the sodium chlorid in 1 gram of blood is estimated by dividing the amount in 1 c.c. by 1.060, the specific gravity of normal blood. This introduces a slight error in the cases of anemia in which the specific gravity is necessarily lower than normal.

That this method is not at all difficult to carry out, with due regard to the accuracy required in any quantitative chemical analysis, is seen in the fact that this small series of cases represents every consecutive experiment I have made with the exception of two early ones in which the technic of obtaining the blood was at fault.

REPORT OF CASES.

CASE 1.—Male, aged 43, with aortic insufficiency, broken compensation, dyspnea, cough, enlarged liver, edema of ankles; 1 c.c. blood contains 5.49 mg. sodium chlorid, or 0.518 per cent. sodium chlorid by weight.

CASE 2.—Male, aged 29, with gastric neurosis with absence of free HCl after test breakfasts. For past ten days he has been taking 3 drams of dilute hydrochloric acid daily; 1 c.c. blood contains 5.34 mg. sodium chlorid, or 0.504 per cent. sodium chlorid by weight.

CASE 3.—Male, aged 24, with epilepsy. Patient has been on a diet with restricted salt for past three months, and has taken no bromid during this period; 1 c.c. blood contains 5.49 mg. sodium chlorid, or 0.518 per cent. sodium chlorid by weight.

CASE 4.—Male, aged 40, with chronic interstitial nephritis. He has hypertrophied heart, relative mitral insufficiency, moderate dyspnea, blood pressure from 218 mm. to 235 mm., marked neuroretinitis, occasional vomiting, no diarrhea. The urine is increased in amount, of low specific gravity, with a good trace of albumin and a moderate number of hyaline casts. Determination of the chlorids in the urine shows an excretion of 4.37 gms. in 24 hours. Patient is receiving no medicines, is on liquid diet, and is being given a daily sweat-bath; 1 c.c. blood contains 5.19 mg. sodium chlorid, or 0.489 per cent. sodium chlorid by weight.

CASE 5.—Male, aged 19, with chronic parenchymatous nephritis. He has marked general anasarca, hydrothorax and ascites, and pronounced anemia. Urine: 1,950 c.c. in 24 hours; specific gravity, 1.018; albumin, 8 gm. per liter; many hyaline, finely and coarsely granular casts. Determination of chlorids shows an excretion of 6.16 gm. sodium chlorid in 24 hours. Left chest was aspirated and 1,900 c.c. serous fluid withdrawn. This contained 7.28 mg. sodium chlorid per c.c.; 1 c.c. blood contains 5.80 mg. sodium chlorid, or 0.547 per cent. sodium chlorid by weight.

CASE 6.—Male, aged 32, with acute lobar pneumonia. Seventh day of illness: He has consolidation of whole left lung, continuous fever, delirium, herpes, etc. Urine: 2,450 c.c. in 24 hours, with total chlorid excretion of 1.04 gm. sodium chlorid; 1 c.c. blood contains 5.65 mg. sodium chlorid, or 0.533 per cent. sodium chlorid by weight.

CASE 7.—Same patient as in Case 6. Eighth day of illness: Crisis occurred last night. 1 c.c. blood contains 5.49 mg. sodium chlorid, or 0.518 per cent. sodium chlorid by weight.

CASE 8.—Male, aged 53, with carcinoma of stomach, for which gastroenterostomy has been done. He has marked prostration and anemia. Hemoglobin, 35 per cent.; 1 c.c. blood contains 5.95 mg. sodium chlorid, or 0.561 per cent. sodium chlorid by weight.

CASE 9.—Female, aged 29, with marked secondary anemia due to bleeding hemorrhoids. Red blood corpuscles, 2,100,000; white blood corpuscles, 7,200; hemoglobin, 25 per cent.; 1 c.c. blood contains 6.24 mg. sodium chlorid, or 0.588 per cent. sodium chlorid by weight.

CASE 10.—Same patient as in Case 4. Uremic coma; duration, 48 hours; void urine involuntarily. This examination was made 27 days after that recorded in Case 4, and 3 days before death; 1 c.c. blood contains 5.34 mg. sodium chlorid, or 0.504 per cent. sodium chlorid by weight.

CASE 11.—Male, aged 17, with acute lobar pneumonia; consolidation of right lower lobe. Sixth day of disease. Urine: 810 c.c. in 24 hours, with total chlorid excretion of 1.92 gm. sodium chlorid; 1 c.c. blood contains 5.19 mg. sodium chlorid, or 0.489 per cent. sodium chlorid by weight.

CASE 12.—Male, aged 34, with Hodgkin's disease. Patient is in hospital for diagnosis and is receiving no medicine. Red blood corpuscles, 3,016,000; white blood corpuscles, 9,600; hemoglobin, 37 per cent.; 1 c.c. blood contains 5.80 mg. sodium chlorid, or 0.547 per cent. sodium chlorid by weight.

CASE 13.—Male, aged 18, with splenomyelogenous leukemia. On admission three weeks ago leucocyte count on three examinations showed 268,000, 220,000 and 241,000 white cells per c.mm., with typical blood picture. The spleen is exceedingly large. Since admission he has been treated with arsenic and *x*-ray applications. To-day blood count shows: Red blood corpuscles, 2,560,000; white blood corpuscles, 26,800; hemoglobin, 45 per cent.; 1 c.c. blood contains 6.38 mg. sodium chlorid, or 0.601 per cent. sodium chlorid by weight.

The sodium chlorid content of the blood in this series is seen to vary between 0.489 per cent. and 0.601 per cent. The former figure was obtained in two cases, one case of chronic interstitial nephritis and one of pneumonia, the latter in the patient with leukemia with secondary anemia. It is at once noted that the higher values are found in the patients with anemia, including one case each of chronic parenchymatous nephritis, Hodgkin's disease, carcinoma of stomach, secondary anemia due to bleeding hemorrhoids, and leukemia. On the other hand, the lowest values are found in those conditions which are associated with venous stasis as is well seen in one of the pneumonia cases, and in the patient with chronic interstitial nephritis with relative mitral insufficiency and dyspnea. These findings are in entire accord with the results of cryoscopic examinations of the blood in similar conditions. Thus, the extensive researches of Koranyi[4] showed that the freezing point of the blood is higher, i. e., above 0.56 degrees C., in anemias and those fevers which do not interfere with the respiration, including chlorosis, tuberculosis, typhoid and the various cachexias; while the freezing point of the blood is lower than 0.56 degrees C. in all diseases which are accompanied by deficient respiration or kidney function, or both, including pneumonia, broken compensation in cardiac disease, and nephritis.

In spite of the fact that the salt content of the blood is generally accepted to be practically constant in both health and disease, as is abundantly confirmed by cryoscopic studies, yet a review of the recent literature on the subject of chlorid retention reveals frequent reference to "chloridemia."

Furthermore, several monographs, representing arduous chemical investigations, have lately appeared in which the authors have found marked variations in the sodium chlorid content of the blood in the different conditions studied. The most extensively quoted of these is a paper by Rumpf[5] who made complete analyses of the blood, kidney, heart, liver and spleen postmortem. In fifteen cases of nephritis he obtained values for

4. Ztschr. f. klin. Med., 1897, xxxiii, 1-54; 1898, xxxiv, 1-52.
5. Ueber chemische Befunde bei Nephritis, München. med. Wchnschr., 1905, lii, No. 9, p. 393.

sodium chlorid in the blood from 0.532 per cent. to 0.141 per cent. He concludes, in part, as follows: "In many cases of nephritis the chlorid content of the blood and of the tissues is increased; nevertheless, the chlorid content in nephritis gives by no means the highest values. Furthermore, there are cases of chronic nephritis in which the chlorid content of the blood is rather diminished than increased in spite of edema, albuminuric retinitis, and uremic phenomena."

This author's conclusions are based on results that are entirely inaccurate for the reason that the blood was obtained at the postmortem table at varying periods after death. As is well known, nearly all the sodium chlorid resides in the plasma, and the clotting and sedimentation of the blood prevented him from obtaining the due proportion of corpuscles and plasma in the specimens weighed out for chemical investigation. It was the frequent reference to Rumpf's paper that led me to devise the method of sodium chlorid determination herein contained. The results in my cases, however, are in entire accordance with the findings of cryoscopy and the generally accepted fact that the sodium chlorid content of the blood, or rather plasma, is remarkably constant both in health and in disease.

The application of this method to the study of transudates and inflammatory exudates may prove to be of interest. I have had the opportunity of making only three experiments in this direction, as follows: Arthritis of knee, clinical diagnosis tuberculosis, 1 c.c. fluid contained 6.38 mg. sodium chlorid; hydrothorax in a case of chronic parenchymatous nephritis, 1 c.c. fluid contained 7.28 mg. sodium chlorid pleurisy, with effusion, 1 c.c. fluid contained 6.38 mg. sodium chlorid.

SUMMARY.

The sodium chlorid content of the blood and body fluids may be accurately estimated by an adaptation of Volhard's method of quantitative chlorid determination after first precipitating and oxidizing the albumin bodies by nitric acid. The method requires one cubic centimeter of blood, aspirated from a vein, and accurately measured in a volumetric pipette. Clinical applications of this method show a practically constant value for sodium chlorid in a variety of conditions such as nephritis with and without edema, uremia, pneumonia, epilepsy, gastric anacidity, and conditions of cachexia. Variations in the amount of sodium chlorid depend on the relative proportion of plasma and corpuscular elements in the specimen examined, with the highest values in cases of anemia and the lowest figures in patients with venous stasis due to heart, kidney or lung affections.

CONCLUSIONS.

1. The proportion of sodium chlorid in the plasma of the blood is constant in conditions of health and disease.
2. The term "chloridemia" is unjustified.

Interest in the Case.—It is said of some physicians they are good only for serious cases, for these are the only class of cases they show interest in. This class of physicians necessarily limit their work for the very serious cases are few in number and are usually not serious at first. A keen interest in his ailment is demanded by each patient though it is but a rhinitis or a fancied illness, and many of the fake healers would be out of business if the physician had shown an interest in the case which afterward wandered away from him.—*Leucocyte.*

RELATION OF SO-CALLED OPHTHALMIC MIGRAINE TO EPILEPSY.*

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I venture to offer a word on the subject of the relation of so-called "ophthalmic" migraine to epilepsy—a subject on which discussion is by no means closed.

The "ophthalmic" migraine of Charcot I do not regard as essentially an ophthalmologic subject, but the accompanying, and often quite alarming visual and other sensory disturbances, many of which are naturally referred to the eyes, lead the afflicted to consult an ophthalmologist. This, together with its frequency of occurrence, gives the ophthalmologist a large opportunity to see and study cases of this kind—an opportunity which is unequaled by any other class of practitioners.

From the time of Airy's graphic description,[1] in 1868, and of Liveing,[2] in 1873, to that of Gowers[3] of the present day, the symptoms of this affection have been presented to the profession over and over again, and are, or should be, familiar to all. Therefore, I shall at once invite attention to the relation of this disease, expressed by visual scintillations and scotomata, motor and sensory disturbances, aphasia, etc., to epilepsy.

That a difference of opinion still exists in regard to the relationship of these two diseases is shown by the following quotations from two excellent authorities. Dr. William P. Spratling[4] says: "I believe it (migraine) is associated with the disease (epilepsy), especially in women, who more frequently show a periodicity in convulsive phenomena than men. Unquestionably some of the lighter forms of epilepsy pass for periodic sick headaches. It is a rule for psychic seizures to be followed by an intense, protracted pain in the head, that may persist for several days." On the other hand, Dr. James Hendrie Lloyd[5] says in regard to the possibility of the transition from migraine to epilepsy: "This claim is made by some authors, but the present writer has never seen or heard of an authentic case, and does not believe in the doctrine."

Most authorities endorse the conclusions of Liveing and some of his predecessors, which are voiced by Spratling. Believing that migraine and epilepsy are two distinct forms of neurosis, I desire to do what I can toward disabusing the profession of the idea that a kinship exists between them, or that a genuine transformation of one into the other ever takes place.

By way of illustration, one of the more recent efforts to establish such kinship has been made by Dr. Spiller of Philadelphia, who has described in detail two cases.[6]

CASE 1.—A man, 51 years of age, who, since 44, had had attacks occurring twice a year at first, but now quite frequently. During the first four years there was numbness of the tongue on the right side, and inability to speak, the attacks lasting a minute or two. At 48 he began to have similar attacks of numbness in his right upper limb, and after a short time in his right lower limb. The paresthesia was always confined to the right side of the body, and was associated with impaired function of speech and weakness of the

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* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. Philosoph. Trans. Royal Soc., Lond.
2. Megrim or Sick Headache, London, 1873.
3. Subjective Sensations of Sight and Sound, etc., London, 1904.
4. Epilepsy and Its Treatment, 1904, p. 180.
5. Posey and Spiller's "The Eye and the Nervous System," 1906, p. 710.
6. Am. Jour. Med. Sci., January, 1900.

hand. There was also a feeling of tension in the limbs at times, and the right eye would feel drawn upward, to the right, and backward when the numbness passed to the right side of the head. When seen in the attacks, however, the eyes were not drawn upward. In the lighter attacks there was no loss of consciousness, but in the "major" attacks there was loss of consciousness and he would fall. These attacks were preceded for twenty minutes by an unusually "well" feeling, followed by drowsiness, and as they came on he would utter a sound like "uh-uh-uh."

He sometimes remained unconscious in severe attacks for half to three-quarters of an hour. The attack was followed by bewilderment for a short time. There was a slight tremor of the hands, but no jerkings or twitchings. He had not suffered from headache, was seldom dizzy and never had hemianopsia, scintillating scotoma, or other visual disturbances.

This case Dr. Spiller considers one of epilepsy in which the absence of convulsions is a noteworthy feature.

CASE 2.—A well-developed woman, 21 years of age, when 4½ years of age, fell and struck her head, leaving a red spot on the right side. She was at first confused, and in a few minutes became unconscious. After a short time she began to scream and could not be quieted for several hours. For several days afterward her mind was exceedingly active. Some months after the fall she had an attack in which the right arm fell powerless to the side of the body, and the whole right side seemed paretic for about half an hour, and she complained of headache.

These attacks recurred for several years, sometimes being on the right side and sometimes on the left, but never on both sides. As she grew older she explained that in the attacks there was numbness and paresis of the limbs, paraphasia, and intense headache on the side opposite to the affected limbs. The numbness began in the fingers and passed upward. She was unable to speak correctly when the numbness reached the tongue. The visual disturbances were doubtful. In one attack during the past year there was dimness of vision. No convulsions ever occurred. The headache, when frontal, was attended by a sense of sweet odor, when none existed.

On Oct. 4, 1899, she was suddenly attacked by severe headache, a few minutes after which she became quiet, and her father, a physician, thought she was unconscious. She soon began to complain of pain again, and a very small amount of chloroform was administered. After the attack was over she had a very imperfect recollection of what happened. This was doubtfully interpreted as an epileptic seizure.

In these two cases Dr. Spiller believes that he finds a connecting link between epilepsy in the first and migraine in the second by means of the transitory paresis, paresthesia, and disturbance of speech found in both.

Sir William Gowers, Féré, Charcot, Diller, Möbius, and others, refer to their experiences corroborating the theory that the two diseaes are related to each other. Gowers,[7] in speaking of the pathology of migraine, and especially of its relation to other diseases, says: "The most important and one of the most frequent of these associations is the relation of migraine to epilepsy. The connection of the diseases is of especial interest because the sensory disturbance of the two has so many common features." He then refers to cases of epileptics in whom migraine was present in themselves or in their ancestors or descendants. He says he has met with a number of cases in which there was both epilepsy and migraine. In some, epilepsy developed after many years of migraine or seemed to grow out of it. In one, the migraine which had existed for years almost disappeared when the fits occurred, and vice versa. In some there were similar sensory symptoms preceding the epilepsy to those in migraine.

7. Diseases of the Nervous System, Am. Ed., 1888, p. 1182.

In all that Dr. Spiller or others have said it has not been proved that these supposed "connecting-link" symptoms belong essentially to true epilepsy, or that they are necessarily forerunners or development-symptoms of it. Undoubtedly among those affected by transitory paresis and paresthesia there are thousands who never have epilepsy to one who has. They are, however, common in those affected by migraine. Again, undoubtedly, there are thousands who are subject to migraine, even the typical "ophthalmic" form, who are not epileptic, to one who is. My own observations serve to prove this assertion.

The effort has been made to establish a relationship not only between migraine and epilepsy, but also between migraine and other disorders. Gowers[7] says that gout bears a causal relation, and adds that "an alternation is often observed with some other forms of neurosal disorders or at least a transition from one to another. Migraine occasionally ceases, and is replaced by simple neuralgia." Liveing[2] has collected many instances of such transition of migraine to gastralgia, laryngeal spasm, anginal seizures, and paroxysmal insanity. In one case, acute mania came on.

In my opinion, more proof than these and similar citations is required to establish a kinship or transition (transformation, according to Liveing), of migraine to other diseases. In the first place the pathology and pathogeny of migraine is very obscure. Second, certain symptoms may or may not attend it, such as aphasia, paresis, paresthesia, etc. Some of these are complained of by persons who are neither migrainous nor epileptic. Third, altered states of the nervous system and of metabolism in various ways may induce or aggravate migraine, or, on the contrary, so act as to alleviate it, or perhaps even to stop it entirely, at least for a time. In my own case, an ocean voyage does away with attacks of migraine entirely, during the time, and often for many months afterward; but it can scarcely be assumed that there is a direct transition or relation between migraine and seasickness. A change, however, is undoubtedly effected, etiologically, by which the migraine is abated.

DIFFERENTIAL DIAGNOSIS.

The argument that there is a similarity of symptoms of migraine to those of epilepsy does not seem to me to be well sustained. A paroxysm of epilepsy is sudden in its onset, begins almost without warning, and at once reaches a climax. Its duration is short and the patient soon becomes normal again. That of migraine begins with slight symptoms which gradually increase in severity and reach their climax after a half hour or one hour. Even the visual disturbances which sometimes usher in an attack are at first slight and gradually become more pronounced for ten or fifteen minutes, when they reach their height, and then slowly disappear in the course of another ten or fifteen minutes. In epilepsy there are convulsions, in migraine there are none. In epilepsy there is unconsciousness, in migraine there is not. In epilepsy there are varied sensory and mental disturbances which do not belong to migraine, and vice versa. Epilepsy often leads to insanity; migraine does not. Epilepsy has the character at first of an "explosion," while migraine is at first more like a "nervous inhibition." The sequence of an attack is different in both diseases.

I may add that my personal experience and observation also serve to establish a separate, individual entity, functional, or otherwise, for the two diseases.

Having been myself affected from childhood with typical migraine, ushered in by "fortification" and "spectral" visual scotoma and having been somewhat disturbed by the idea of its kinship to epilepsy, a disease to which death would almost be preferable, which Liveing and other high authorities had promulgated, I have been led to take deep interest in the subject. I have had migraine in all its variations as to intensity, frequency, accompanying motor and sensory disturbances, length of interval between attacks, etc., but have never had a single symptom of epilepsy. In my mother's family and my own, there have been, besides myself, twelve who have been subject to migraine, but not one has had epilepsy in any form.

My practice has given me a large opportunity to extend my inquiries far beyond my family limitations, with results that are not only enlightening, but, as it seems to me, comforting to one afflicted with "ophthalmic" migraine, and who has an intense abhorrence of becoming an epileptic.

Since 1888 I have been consulted by a very large number of migrainous patients. I have not collected the full number, but it must have exceeded two thousand. But to keep the number within the bounds of absolute certainty, I will place it at fifteen hundred, or an average of seventy-five a year. I have questioned these patients in regard to symptoms of epilepsy, and not one of the fifteen hundred had had epilepsy in any form or degree, neither had it existed in any of their ancestors or descendants, so far as I was able to ascertain.

It is not impossible that migraine and epilepsy may exist in the same individual. In fact, I know a few epileptics who are also subject to migraine, but the attacks are entirely separate and independent. Neither will I question the changed manifestations of one disease in the presence of the other, but I do not think that this proves a kinship or transformation. If migraine is related, either etiologically or pathologically, to epilepsy, it does seem that during its existence for a period of years, varying from one to fifty, a certain proportion of fifteen hundred would have become epileptics or shown some symptoms of epilepsy. But no such result has taken place.

I have no doubt that some epileptics may be migrainous, and that occasionally out of so many who have migraine there may be, now and then, one who is also epileptic or who may develop epilepsy. But this does not prove a pathologic kinship. It might as well be assumed that there is a relationship between dyspepsia and epilepsy because certain epileptics have dyspepsia, or certain dyspeptics have epilepsy.

I might enlarge on this subject, perhaps with profit, but Sir William Gowers, apparently with a decided change of views, has most clearly, as it seems to me, epitomized in his late volume[8] conclusions that nearly approach my own. I will make a single quotation from that work:

"The traces of a definite relation of migraine to epilepsy are slight. In extremely rare instances one affection may develop, while the other goes on, and as we have seen, the same premonitory disturbance may even be attached to each. But such cases are so rare as rather to emphasize the rule to which they form exceptions. When the exceptions are carefully examined they show that any relation to epilepsy is indirect."

8. The Borderland of Epilepsy, London, 1907, p. 77.

DISCUSSION.

DR. WALTER R. PARKER, Detroit: The result obtained from efforts to determine the relationship of diseases when clinical symptoms are similar, the etiology and pathology of which are unknown, is certain to be unsatisfactory. And such is the case in regard to migraine and epilepsy in the so-called borderline cases. Migraine is defined as a neurosis, the cause of which is unknown, giving rise to certain functional disturbances, classified according to the most prominent symptoms, as, first, ophthalmic, if the visual sense is disturbed; second, ophthalmoplegic, if the third nerve is involved, and third, psychic if the mental symptoms predominate; a classification entirely clinical. So, too, epilepsy is a neurosis, the cause of which is unknown. The relation between the two diseases is made entirely on clinical evidence. Some rare cases of extreme asthenopia, with headache, vertigo and reflex gastric symptoms, due to a refractive error or muscle imbalance, may present a group of symptoms not unlike those of migraine or epilepsy. If this is true, is it not possible that, in the consideration of these cases, not enough importance has been given them?

Some of the early writers (Piqrry) asserted that ophthalmic migraine was due to "overstrain of the iris and overstimulation of the retina," while a few of the later writers think that eyestrain is never a causative factor. Lloyd, in Spiller and Posey's work, after reviewing the subject of eyestrain as a possible etiologic factor, states that "some hasty observers are led into a conceivable error due to the prevalence of astigmatism." To say that all cases of migraine are due to a refractive error would probably be as far from the truth as to say that all cases of epilepsy that are cured by the correcting of a refractive error are due to hysteria. Either the truth lies between those two extremes or there is a group of cases, presenting all the clinical manifestations of migraine, which might be called a reflex migraine; just as there are cases of reflex epilepsy, each reflex manifestation distinguishable from the real only by the results of treatment. It may be, too, that this small group of cases has been the source of error that has led some observers to hold out promises of cure of migraine and epilepsy that have been so disappointing. Since the causes of migraine and epilepsy are unknown, and since there is a possibility of a reflex group simulating one or the other of the diseases, the relation between them will probably remain in doubt until the morbid process underlying each is developed. Gower says: "As the real nature of the morbid process of epilepsy and migraine is unknown, we are hardly justified in saying more than that in each malady a state of nerve tension seems slowly to develop which is at last relieved by a violent functional disturbance." I have not seen as many cases in fifteen years as Dr. Hubbell sees each year. It is this large number of cases that makes the paper so important, as we are entirely dependent on clinical observation for our comparison of these most unfortunate diseases. As far as any positive deductions are possible, we can say that no direct relation between the two diseases has been proved and, as Dr. Hubbell suggests, we can with propriety assure our migrainous patients that they will probably not develop epilepsy.

DR. LEARTUS CONNOR, Detroit: I do not recall a single case in which I had reason to believe that migraine had any relation to epilepsy, and nothing I did to an eye ever cured an epileptic. Neither have I seen in the literature anything to convince me that any treatment of an eye ever really cured a case of epilepsy. I have seen plenty of cases in which the treatment of the eye has diminished or modified attacks of migraine.

DR. G. C. SAVAGE, Nashville: Migraine can be cured by treatment of the eye in many cases. I have even cured epilepsy by operating on the muscles and by prescribing glasses. No examination, undertaken for the correction of nervous phenomena that might possibly depend on the eye, is complete, unless the feature of eyestrain is considered. A physician in Iowa had one of these troublesome cases which he referred to me. The patient had been to many neurologists and oculists. She was an extremely nervous patient. She had two degrees of right hyperphoria and 5 degrees of plus cyclophoria. I found that it was necessary only to operate on the nasal-central fibers of the right superior rectus muscle. The one operation made her

perfectly well. That has been five years ago. About six years ago a young man with epilepsy was brought to me by his father and two brothers. The father said that the convulsions were so terrific that if the boys were not with the patient he would do himself physical harm. I detected a hyperphoria, without any cycloplegia. I operated, doing a central partial tenotomy, and that young man has not had a single convulsion from that day to this. Instead of having that dulness of mind into which he was passing very rapidly every day, he now has a very active mind.

DR. A. A. HUBBELL, Buffalo: I think that physicians and ophthalmologists would be surprised at the number of cases they would find of Charcot's ophthalmic migraine if they would extend their inquiries a little further. I do not get more than other men with a good-sized practice, but I sometimes meet four or five a day, and if, in cases of headache, you inquire as to these scintillations, you will find them very frequent. I quite agree with Dr. Parker. I perhaps would agree with Dr. Savage. I have not gone into the etiology of this form of migraine at all. My discussion applies simply to its relation to epilepsy, and as to whether one disease may be transformed into the other. It is a disorder of the cortex of the brain—it is not the eye. The refractive errors may have something to do, indirectly, with inducing this form of migraine; but I am not sure that they are the essential cause. I have no doubt that Dr. Savage has cured these patients in this way. I have done the same many times, and many times I have not succeeded. The point I wish to make is simply that migraine is not a cortical explosion in any sense comparable with that of epilepsy; that there is no pathologic kinship.

DIFFERENTIAL DIAGNOSIS OF AFFECTIONS OF THE OPTIC NERVE.*

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The subject for consideration is the differential diagnosis of pathologic conditions of the optic nerve between chiasm and retina.

Pathologic investigation has differentiated various forms of inflammatory affection, of traumatic injury, of vascular disease, of hemorrhages and neoplasms within and around the nerve and different kinds of atrophy of the nerve fibers either primary or consequent on the previously mentioned affections. Clinical observation has shown that these conditions differ in the appearance of the nerve head and in their effect on central and peripheral vision, and that variations are not only found between different affections, but even between different cases of the same or similar affections according to location and extent of lesion. The differential diagnosis, therefore, depends in one case on the ophthalmoscopic picture, in another on characteristic changes in the field of vision; but in most cases we must rely for differential diagnosis on careful study of both the appearance of the nerve head and the function of the nerve as tested for acuity of central, peripheral and color vision, on their changes during the progress of the disease; and the facts thus elicited must be considered in connection with the previous history and habits of the patient and with such other ocular, constitutional, organic and especially nervous diseases as may be discovered.

For the purpose of our inquiry we shall divide the subject into:

(A) Those cases in which there is ophthalmoscopic evidence of inflammation in the optic disc.
(B) Those cases in which the nerve head presents the picture of atrophy.
(C) Those cases in which the disc is normal or approximately normal in appearance.

A. AFFECTIONS IN WHICH THERE IS OPHTHALMOSCOPIC EVIDENCE OF INFLAMMATION IN THE OPTIC DISC.

The recognition of inflammation of the optic disc is sometimes rendered difficult by the great variations which normal optic discs present, and particularly by the markedly hyperemic condition which has been described as pseudo-neuritis. In these cases there may be marked tortuosity of the vessels, but the nerve remains transparent, the vessel walls are normal, there is never great swelling, and we usually find marked errors of refraction, commonly hypermetropic. Continued observation may be necessary for definite diagnosis.

The presence of fine, congenital patches of connective tissue or of hyaline bodies (Drusen) should never lead to errors in diagnosis, the absence of congestion and tortuosity and in the latter condition the characteristic reflexes enable us to recognize these conditions without difficulty.

The inflammatory affections of the optic disc are commonly divided into the descending optic neuritis or neuro-retinitis and choked disc. For clinical reasons it is of great importance to distinguish them, though their differentiation is by no means always an easy matter. The typical choked disc with the narrow arteries, the full and tortuous veins and the great prominence of the optic disc usually occurs as a binocular affection, and when binocular is the expression of increased intracranial pressure, most frequently produced by tumor, symptoms of which are rarely absent. The tumor may be benign or malignant, syphilitic or tuberculous. There is at first little or no visual disturbance, the central vision is unimpaired, the outlines of the field of vision are not reduced and the enlargement of the blind spot is easily overlooked. But there is occasional or frequent obscuration of vision, when, for a moment, everything becomes black before the patient, a symptom rarely found in other conditions than those of increased intracranial pressure. It is only at a late stage when the neuritis gives way to atrophy that there is rapid and marked failure of vision.

The combination of intense neuritis with such slight disturbance of the function of vision is as important as it is characteristic when we bear in mind that ninety per cent. of tumors of the brain, at some time, produce optic neuritis. Cerebral tumor, especially when in the middle fossa, may likewise produce unilateral choked disc or even choked disc of one eye and simple neuritis or optic atrophy of the other. Unilateral choked disc is most frequently due to orbital causes or to a meningeal syphilis passing down and causing lesions of the sheath.

The causes of choked disc aside from brain tumor are too well known to be dwelt on at this time. (Cerebral abscess, meningitis, hydrocephalus, nephritis, anemia, etc.) To one only do I wish to call special attention; namely, to serous meningitis. It is probable that some of the cases in which the diagnosis of brain tumor was made and in which recovery took place should be put in this category.

CASE 1.—In December, 1905, I saw a little girl, aged 4, who had been ill for three weeks with high temperature and pain in the ears. Convulsions had occurred. The drums were congested and were punctured without obtaining any exudate.

*Read in the Joint Meeting of the Section on Nervous and Mental Diseases and the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908

On ophthalmoscopic examination, marked optic neuritis was found and the patient was referred to Dr. Harvey Cushing, who made a decompression operation, followed by complete disappearance of the neuritis. I have seen the child at intervals and find that she has remained perfectly well.

CASE 2.—A case still more definite is that of Mary P., colored, aged 32, first seen on Feb. 20, 1906, for acute suppurative otitis media and mastoiditis on the left side. The patient did not consent to an operation until March 3. The operation was performed by Dr. S. Rosenheim and myself. There was pus under some pressure in the mastoid cells and the bone was soft. The lateral sinus was exposed for about one-half an inch; part of it was found covered by granulation tissue. The tip of the mastoid was one large cell filled with pus and granulation tissue on the posterior part of which the sinus was likewise exposed. After packing the latter cavity and withdrawing the packing there was a profuse hemorrhage from the lateral sinus, though no violence had been used. It was controlled by packing with iodoform gauze. Her temperature before the time of the operation was about 99 F., pulse 80 to 98. On the following days the temperature was irregular, reaching 103.6 F. on the fourth day after the operation, while at the same time her pulse dropped on the second day after the operation to 64, and remained below 70 for several days, except when the temperature was very high and the pulse rose to 100.

On the fifth day (temperature between 98.8 F. and 100.5 F.) abducens paralysis set in and I found mild optic neuritis. From this period on the temperature remained normal, though the pulse continued slow during the entire first week, but the neuritis increased and rapidly became a typical choked disc with hemorrhages in both eyes, more marked in the left. This condition lasted for some time, when the patient ceased coming, the wound having healed.

Seven months after the operation I found very little swelling of the discs, the veins slightly tortuous, but not very full, the arteries somewhat narrow, the color of the discs pink, and margins obscured; the condition of the left eye being more marked than that of the right eye. V. R. E., 16/30; V. L. E., 10/100. While optic neuritis is known to occur in a small number of cases of lateral sinus thrombosis, there was no evidence in this case of thrombosis, and the diagnosis of serous meningitis following injury of the softened wall of the sinus was most probable.

Spontaneous recovery from choked disc with cerebral symptoms, unless due to hemorrhage which is absorbed, or to syphilitic lesions which disappear under treatment, or in very young children whose suture lines break and thus allow expansion, is very rare.

CASE 3.—Mrs. G., aged 33, married and mother of two healthy children, whom I saw in 1891, had marked papillitis in the right eye with cerebral symptoms. She recovered after several months. There was no evidence whatever of syphilis. In 1896 she had a recurrence with vertigo and vomiting which again yielded to treatment (iodid of potash). I examined this patient last year and found some retinal pigment atrophy around the disc and normal central and peripheral vision. No evidence of atrophy of the discs, no swelling and no sign of previous neuritis.

Passing on to the other variety of optic neuritis, the so-called descending neuritis, we find but very moderate swelling if at all, no fulness or tortuosity of the veins, but an exudate clouding the disc and blurring the margin and perivascular lines bordering the blood vessels. In these cases, vision rapidly drops and frequently is entirely extinguished. The cause of double descending neuritis is usually some form of meningitis. Meningitis at the base is more prone to produce the optic neuritis and especially tubercular and syphilitic basilar meningitis spreading along the sheath as a perineuritis and thus involving nerve and even retina. Epidemic cerebrospinal meningitis, according to Uhthoff, produces optic neuritis in about 16 per cent. of the cases. It may result from nephritis. When unilateral it is usually due to orbital inflammation or extension from the nasal sinuses.

The differential diagnosis of descending neuritis showing the combination of the great visual disturbance with the characteristic inflammation of the disc presents no difficulty. Both forms of neuritis, the descending as well as the choked disc commonly end in white atrophy, in post-neuritic atrophy.

B. AFFECTIONS IN WHICH THE NERVE HEAD PRESENTS THE PICTURE OF ATROPHY.

Optic atrophy is a term applied clinically to such atrophic conditions as show distinct pallor of the optic disc. They may be due to primary atrophy, as found in locomotor ataxia or secondary to injuries, to the pressure of tumors or of sclerotic blood vessels, to embolism or thrombosis of the central retinal vessels, to retinal or chorioidal atrophy, or to any form of neuritis, choked disc, descending or retrobulbar. The picture presented by the optic disc varies greatly. There may be the grayish pallor, with or without marked narrowing of the larger vessels, but with disappearance of the finer blood vessels and with sharply marked border as is usually seen in spinal atrophy. Or there may be the intensely white disc with irregular margins and perivascular lines usually seen as post neuritic atrophy. But it has been clearly shown that the variations are so great that we can not always determine from the appearance of the disc what form of atrophy it presents. And as in the case of pseudo-neuritis, so here we must also be careful not to regard every pale disc as atrophic, for pallor of the disc is at times very marked in high grades of anemia.

The visual function bears no relation to the appearance of the disc; we may find high grades of apparent atrophy with good vision, and vice versa.

Primary atrophy is with rare exception spinal atrophy. It begins at the bulbar end of the nerve, and therefore the pallor of the disc and the visual disturbance occur simultaneously. Uhthoff has defined three forms in which the field of vision is variously affected and which differ in their course and their prognosis. In the first there is diminution or loss of vision throughout the entire field, central vision is lessened and peripheral vision is restricted, though not uniformly, both for form, but especially for colors. In these cases, vision for green and then for red is lost, later for yellow and blue, thus producing a very great widening of the color blind area of the field. The progress is rapid, is hastened by mercury and the prognosis is absolutely bad.

In the second class sharply cut sector-like defects occur, but the parts preserved are normal in respect to color and form vision. The function of the parts retained may remain stationary, though it is usually lost after a time, one sector succumbing after another. This class, according to Wilbrand and Saenger, presents great similarity to that of syphilitic retrobulbar perineuritis with secondary atrophy of the disc.

The third class shows concentric contraction of the field with good central vision and good color vision in the portion preserved. Similar fields are found resulting from syphilitic affection of the intracranial portion of the optic nerve.

Wilbrand and Saenger have found that the course of the second and of the third class is very favorably influenced by the use of mercury, and they recommend

its use here as emphatically as they warn against it in cases of the first class. They suggest as explanation that the differences may lie in mistaking syphilitic pseudo-tabes for true tabes, or the possibility of a combination of cerebral syphilis with true tabes which would likewise explain the occasional occurrence of "post-neuritic atrophy" in locomotor ataxia.

Uhthoff has shown that true primary optic atrophy never occurs in cerebral syphilis, that it is always secondary. It is, therefore, assumed that it likewise does not occur in spinal syphilis, and that the optic atrophy found in syphilitic pseudo-tabes is secondary and therefore yields to specific treatment. The difficulty of a differential diagnosis between the true tabetic primary atrophy and the secondary is very great. The latter is apt to be slow in developing, while primary atrophy, as has been stated, is observed simultaneously with the first visual disturbances. Monocular affections are likely to be syphilitic; variations in visual function more frequently occur in the syphilitic forms; the latter are apt to be complicated with other syphilitic cerebral nerve palsies; pupillary disturbances may occur in both conditions, but the Argyll-Robertson reaction points to locomotor ataxia; hemiopic defects indicate syphilis and the presence of a central scotoma practically excludes primary atrophy. The last named sign, as may be mentioned in passing, likewise helps to differentiate the secondary atrophy of alcoholic pseudo-tabes from the primary atrophy of true tabes.

Wilbrand and Saenger deny emphatically that syphilitic atrophy is ever primary and regard the latter as spinal in every case. They are in accord with Uhthoff's statement that any adult suffering with binocular primary progressive atrophy must be looked on, not only as suffering from serious ocular disease, but also from grave disease of the central nervous system.

Primary atrophy may, as is well known, precede the appearance of the other spinal symptoms by many years, and it is only the termination which may finally determine the definite diagnosis.

CASE 4.—Mr. A., whom I first saw in December, 1895, for left optic nerve affection which had come on suddenly with drooping of the lid, with visions of flashes of light and a large defect in the field of vision, central vision being but slightly affected and the right eye not at all impaired. There was a definite history of luetic infection, but without secondary skin eruptions, mucous patches and other later syphilitic manifestations. Vigorous treatment with iodid of potash and mercury by inunction not only had no effect in arresting the progress of the trouble in the left eye, but did not prevent the same affection arising in the right eye six months later.

The discs at first appeared normal, and showed no atrophy and became pale only after a long period. The sight of the left eye was lost very rapidly, that of the right has shown only slow progress, so that its field is now very small and irregular, but central vision is still almost perfect. In this case, the sudden onset of symptoms, the absence of any early appearance of pallor and the slight ptosis helped to establish the diagnosis as a syphilitic lesion of the optic nerve and even though the treatment did not have the desired effect, the preservation of good central vision in one eye for twelve years and the non-development of any signs of spinal or cerebral disease confirms the diagnosis.

Another case presenting very different appearances is the following:

CASE 5.—A lady, first examined in July, 1890, when her eyegrounds were found normal and with weak convex cylinders her vision was perfect. She was married; her husband had definite syphilis (mucous patches, etc.). In October, 1899, she again presented herself. She had borne four children and had had one miscarriage. Her younger children were very puny at birth but thrived on small doses of calomel. Subsequently, both had hemiplegic attacks, which were favorably influenced by mercury. An older child had two attacks of paralytic chorea. But though under constant care of her physician, the patient herself never presented a single sign of syphilis. Oct. 1, 1899, she complained of failing vision and the ophthalmoscopic examination showed white discs with V. R. E., 6/12, almost, and V. L. E., 6/24, partly. There were large symmetrical defects in the upper inner quadrants of both fields. Absence of the patellar reflex and slight inequality and loss of light reaction of the pupils were soon noted.

The usual treatment was given, iodid of potash, in very large doses, mercury by inunction for a prolonged period, pilocarpin, nitroglycerin, and later for many years, large doses of strychnia sulphate. The sight of her left eye was soon lost, but the progress of the disease was stayed in the right eye. In 1902 she had lost all color perception for green and red. In 1903, the pupils were noted as equal in size and reacted to light. The patient had had attacks of vertigo and intense headache and a lesion of the mitral valve had recently been discovered.

I last examined the patient in July, 1906, when her vision had dropped to 6/22 almost, and having seen the patient recently, I learned that her vision has not changed perceptibly and that she is still taking large doses of strychnia. The diagnosis made in this case was spinal atrophy, but though eight years have passed, no signs of ataxia have developed.[1]

Among the secondary atrophies aside from the syphilitic those caused by neoplasms must be mentioned. These are usually monocular; the tumors produce ocular motor disturbances and displacements of the eyeball, or if at the chiasm produce the characteristic hemiopic defects in the fields by which they can be recognized. The secondary atrophies due to pressure of the sclerosed carotid or ophthalmic arteries should be thought of in slowly developing secondary atrophy in the aged. Atrophies following embolism or thrombosis of the central retinal artery need no special consideration at this time. The history of their onset, their unilateral character and the excessively altered vessels help to establish the diagnosis.

The atrophies following descending neuritis or choked disc are sufficiently characterized by well marked signs of the neuritis, by the perivascular lines and the connective tissue developed from the inflammatory exudate to permit of ready diagnosis, usually borne out by the previous history. The atrophy occurring in deep glaucomatous excavation of the disc presents so pathognomonic a picture that it can not be mistaken.

Secondary atrophy depending on retinal and chorioidal degeneration bear the diagnosis in their yellowish, muddy appearance; in the thread-like blood vessels and especially in the evident retinal or chorioidal lesions.

Traumatic secondary atrophies, when unaccompanied by traumatic changes in the retina or the chorioid are usually recognized by other scars and by the clinical history. One class deserves special mention. I refer to the monocular atrophies resulting from blows on the head, most commonly on the upper margin of the orbit. The blindness and secondary atrophy in these cases is due to injury of the optic nerve in the optic foramen through which the fracture passes. The blindness is usually permanent and distinct atrophy of the nerve head can be made out within four or five weeks after the injury.

1. This case is an interesting example of Colles' law of apparent immunity of a mother who has borne a syphilitic child. The case shows that though immune to the primary and secondary manifestations, she is not immune to the late nervous sequelæ. Since this paper was written, within the month of April, 1908, signs of tabes have set in very acutely and intensely: Ataxia, loss of the patellar reflexes, lightning pains, and disturbance of the function of the bladder.

C. AFFECTIONS OF THE OPTIC NERVE WITH NORMAL OR APPROXIMATELY NORMAL DISCS.

The affections comprised within this group are the various forms of retrobulbar optic neuritis. It occurs in acute and chronic forms. The most common and best known form is the toxic, produced by tobacco and alcohol, and is characterized by a long but narrow paracentral scotoma, reaching from the blind spot of Marriotte to the point of fixation and later embracing it. Its development is very slow. The vision within the area of the scotoma is partially or completely lost. The course of the affection is usually very slow and great improvement and even complete recovery is possible. As stated above, the disc shows little change. There is usually pallor of the temporal sector. The lesion is a neuritis of the papillo-macular fibers of the orbital portion of the optic nerve, a bunch of fibers which possesses peculiar vulnerability to certain poisons. Autointoxication in diabetes may affect it in a manner similar to that just described.

In acute toxic affections resulting from quinin, salicylic acid, methyl alcohol and other substances the blood vessels of the nerve and retina show marked contraction, and there is blindness or a high degree of amblyopia, often followed by early atrophy. The effect of lead poisoning on the optic nerve is to produce a papillitis, together with marked vascular changes.

Numerous infectious diseases may produce retrobulbar neuritis in one or both eyes, with central scotoma or peripheral defects in the field of vision. Central scotoma is more commonly met with and is usually much larger than in the tobacco-alcohol form. Syphilis, rheumatism and influenza may be mentioned as the more important underlying affections. Syphilis, it is thus seen, may produce any one of the forms of optic nerve disease that we have described (except primary atrophy). As an illustration of syphilitic retrobulbar neuritis the following case may be mentioned:

CASE 6.—Mr. A., aged about 45, was seen in November, 1905, with the history of recent syphilis which had not received regular treatment. His right eye, which had always been his better eye (almost emmetropic) had V. 6/30; his left eye (with myopic correction) was normal. There were fine dust-like opacities in the vitreous and on the cornea, but the ophthalmoscopic image was clear. No evidence of chorioiditis.

The right disc showed slight edema. The extent of the field of vision was normal, but there was a large absolute scotoma in the form of a vertical oval below the point of fixation extending as a relative scotoma over this point. Vigorous mercurial treatment, together with iodids and sweats, was ordered and persisted in with the result of obtaining very slow improvement of vision beginning after ten months and not reaching approximately normal vision until more than one year had passed. Since that time, the patient has normal eyegrounds and has had no further trouble.

Acute retrobulbar neuritis in one or both eyes with high degree of amblyopia due to large central scotoma, sometimes with rapid and complete loss of all light perception, is seen in women at the menopause and in young women suffering with sudden disturbances of the menstrual function. Vision is usually regained in great measure, though permanent defects in the field of vision and white optic discs are commonly left. Cases similar to these are sometimes, though indefinitely, classed as rheumatic.

An interesting group of cases of retrobulbar neuritis are those known as hereditary amblyopia, in which there is loss or great impairment of central vision usually without involvement of peripheral vision. The disease commonly attacks male members of a family in early adult life.

Besides the cases thus far mentioned, there are many others, characterized by large central scotoma, which, for want of satisfactory explanation, are commonly diagnosed as idiopathic retrobulbar neuritis. In recent years it has been shown that a number of these cases, apparently more than generally supposed, are to be attributed to inflammation extending from the sphenoidal sinus and the posterior ethmoidal cells. Birch-Hirschfeld has recently shown that this neuritis is apt to present the clinical picture of retrobulbar neuritis with central scotoma. It is further commonly characterized by being monocular and by its sudden appearance and its tendency to rapid extension of the scotoma so as to involve large parts of the field.

Another important contribution to the etiology of a large number of cases of retrobulbar neuritis has been made in the study of the bearing of multiple sclerosis to the ocular affection. It has long been known that retrobulbar optic neuritis, at times showing inflammation or atrophy of the nerve head, frequently occurs in cases of multiple sclerosis and is of great aid as a diagnostic sign; that it is often characterized by great variability in the visual defect and by the possibility of complete recovery after great loss of vision; and that central scotoma is of frequent occurrence. Fleischer has lately followed and studied the cases of retrobulbar optic neuritis observed during the last twenty-five years in Tübingen. His results show that a large number of the cases of retrobulbar neuritis subsequently developed multiple sclerosis. The interval varied from a few weeks to four, five, eight, ten, twelve and fourteen years. If these observations are confirmed it will bear seriously on the nature and prognosis of many of the so-called idiopathic and other forms of retrobulbar neuritis.

Cases are observed in which the typical central scotoma of retrobulbar neuritis is associated with well-marked inflammation of the optic disc. They belong etiologically to the same classes as those described and must be interpreted as retrobulbar neuritis with involvement of the bulbar end of the nerve.

The differential diagnosis of these affections from each other depends chiefly on the previous history and general examination of the patient. The character of the visual disturbance differentiates them from affections due to lesions behind the chiasm, the careful determination of the form and color defects of the field of vision being the main guide. The most difficult diagnosis often lies between these conditions and those of hysterical amblyopia and of simulated blindness. The difference in the fields of vision in hysterical amblyopia and retrobulbar neuritis usually serves to distinguish these affections. And for the detection of simulation the ingenuity of the examiner is often taxed to the utmost.

DISCUSSION.

DR. WILLIAM W. GRAVES, St. Louis: In the diagnosis of cases in which the disc is nearly or proximately normal in appearance, I believe that the point which I am going to mention may be at times of very great importance. We know that there is a certain correlation existing between direct light reflex and consensual light reflex; and this is disturbed if the optic nerve be severed or diseased anywhere between the retina and the chiasm. For instance, having a retrobulbar neuritis, or having an injury which interferes with the integrity of the optic nerve on one side, on the right side, for instance, on that side there will be sluggish to absent direct light reaction and normal consensual light reaction. In the

other eye there will be sluggish to absent consensual light reaction, but a normal direct light reaction.

DR. HARRY FRIEDENWALD, Baltimore: The differential diagnosis of cases of optic nerve disease depends, not on the ophthalmoscopic examination alone, and not on the examination of the field of vision alone, but on both of these, and particularly on a very careful general examination. Without the combination of ophthalmoscopic examination and very careful tests of vision in addition to the general inquiry concerning other constitutional or organic diseases, and especially nervous diseases, we can not make any diagnosis. I want to add one word concerning the examination by the perimeter. I do not know in the whole field of ophthalmology any class of cases in which the careful and painstaking examination of the field is of so much importance and on which so much depends as in cases of diseases of the optic nerve.

A COMPARATIVE STUDY OF THE DOSAGE AND EFFECTS OF CHLORAL HYDRATE, ISOPRAL AND BROMURAL ON CATS.*

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I. INTRODUCTION, METHODS, SYMPTOMS AND CRITERIA.

INTRODUCTION.

In a paper on the comparative actions of chloral and isopral on different animals Impens[1] aimed to establish what he called the "toxic quotient" for these drugs, i. e., the quotient of minimal fatal dose divided by the minimal "effective" dose. He states that this factor (or margin of safety) is uniformly greater for isopral than for chloral and that isopral is, therefore, the safer drug. In analyzing these claims one is at once struck with the fact that the difference for most animals is so small that it might well fall within the limits of error. With the cat alone the difference would seem altogether too large to be explained in this manner.

The experiments published by Impens are, however, altogether too scanty to make his conclusions binding; and in affirming the dose of chloral for cats he fails entirely to describe the experiments which led him to the acceptance of the dose which he has laid down. Hatcher[2] pointed out the unreliability of Impens' conclusions. In the case of the cat particularly the few experiments which Hatcher made indicated that no such difference existed for rectal administration. This drew a rather caustic reply from Impens, in which the latter, however, did not attempt to repair the deficiencies of his first publication. This reply has been so ably discussed by Reid Hunt[3] that I shall abstain from further criticism. There remained, however, several questions of facts which were not adequately decided by either Impens' or Hatcher's work. Most prominent among these was the remarkably small margin of safety of chloral for cats, as claimed by Impens. It seemed important to determine whether this was due to faulty observation on the part of Impens, and if so, how he came to fall into so remarkable an error; or if his results were correct, it seemed important to learn the cause of this idiosyncrasy and thus to form a judgment whether the same idiosyncrasy would be apt to be present in the human subject.

The subject of isopral would scarcely have appeared to me as of sufficient importance to justify the necessary expenditure of time and material; but I deemed that these experiments would throw light on the broader questions of the value of this whole general method of judging the usefulness of hypnotics, establish a normal standard for progressive doses of chloral,[4] and outline the probable limits of error, i. e., what degree of accuracy might be expected from a given number of experiments. The data which have been published thus far are not sufficiently numerous to give any idea of the variations in the individual response of different animals of a species, and until this has been done the establishment of "ratios" is little more than guesswork.

The present series makes this very apparent. I found that there are, indeed, very considerable idiosyncrasies which evidently deceived Impens and which render his criteria of "minimal" effective and toxic doses eminently unsuitable. The elimination of these idiosyncrasies required an extension of the experiments much beyond the limits originally contemplated. The present series comprises seventy-seven experiments with chloral on fifty-seven cats and fifty experiments with isopral on forty cats. Even with this relatively large material the data are not in some particulars as definite as would be scientifically desirable, but they appeared to me as sufficient for practical purposes.

It also appeared to me that the data for the judgment of the method would be more valuable if they were gathered independently at more than one laboratory. I asked Professor Hatcher, therefore, to collaborate, or rather to investigate the questions independently. His results were communicated to me after I had practically completed my own experimental work, and I have obtained his permission to incorporate them in this paper. As will be seen, both series lead to the same conclusions.

In the meantime a new product, bromural, had appeared on the American market and I thought it interesting to test on it the general method which I had elaborated. The experiments with this last drug were intentionally less numerous, comprising twenty-three experiments on ten cats.

METHODS.

Cats were used exclusively and the drugs were administered by stomach tube. The choice of these animals was determined by the original object of the investigation, but, furthermore, these animals seem peculiarly suitable for this class of experiments. Cats are more uniform in intellectual development, more tractable and more easily kept and handled in large numbers than are dogs; and the symptoms are more expressive than would be the case, for instance, with rabbits. The gastric administration was also dictated by the original ob-

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908. Because of the length of this article, part of it has been omitted here. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent on receipt of a two-cent stamp.

* From the Pharmacological Laboratories of the Medical Departments of Western Reserve University and of Cornell University.

1. Therap. Monatshefte, September, 1903.
2. THE JOURNAL A. M. A., June 1, 1907, 1849.
3. THE JOURNAL A. M. A., Dec. 7, 1907, 1909.

4. In a fairly exhaustive search through the literature of chloral, I have not encountered any experiments with chloral on cats, except the bald statements of Impens.

ject of the investigation, but it also appears to me as intrinsically preferable to the rectal method. To secure an empty stomach, the animals were not fed on the morning of the experiment. Isopral and chloral (hydrate) were administered in solution.

I employed concentrations of 1 per cent. for the smaller doses and 2 per cent. for the larger. Hatcher used 3 per cent. The occurrence of vomiting, especially with the larger doses, often cut short the experiment. To circumvent this Hatcher gave at first a fraction of the dose (0.2 gm.) and the remainder in about an hour. I did not resort to this expedient. Animals that vomited were, of course, excluded in tabulating the narcotic and fatal results. We both used the same animals repeatedly.[5] This was done partly for reasons of economy, but mainly because we wished to compare the effects of both drugs on the same animals. As I shall show, this repeated use does not alter the effects, provided the animals have not lost more than 10 per cent of their weight. The latter cases are again excluded in tabulating the fatalities.

Bromural is very slightly soluble in water. The dose was weighed out and rinsed through the stomach tube with hot water. The dosage was, therefore, generally less accurate, but the experiments show that the method gives more satisfactory results than might have been anticipated.

SYMPTOMS AND CRITERIA.

My attention was fixed mainly on the narcotic effect, although other phenomena were noted incidentally. The symptoms with chloral and isopral are identical, except as to the time of their occurrence. They correspond closely with those seen in the human subject. There is apt to be more or less nausea, evidenced by depression, sneezing, coughing, retching, or vomiting. There is also apt to be more or less excitement, preceding or interrupting the hypnotic effect. In the typical cases, there is, with succeeding doses:

1. *Drowsiness.*
2. *Light natural sleep:* the animal slumbers in a natural position, and is easily and completely roused, as by a heavy step on the floor.
3. *Deep natural sleep:* the animal lies in a natural position, soundly asleep. It is roused only by rather severe stimuli, and then incompletely, appearing stupid, and dozing again very quickly. Forced to its feet, it is very clumsy and walks with a stagger. The reflexes are nearly normal.
4. *Light coma:* the animal lies extended on its side or belly, relaxed, but with some muscular tone remaining; it may make some spontaneous movements, but is generally unconscious. It responds rather weakly to pain. The reflexes are generally depressed.
5. *Deep coma:* the animal is completely relaxed and anesthetic. The reflexes disappear, the corneal reflex persisting until rather late.

The experiments performed by Professor Hatcher are those of series HA to HZ; those performed by me comprise series A to Z, AA to AY and BA to BK (see Appendix A).

2. *ANALYSIS OF THE PRINCIPAL PHENOMENA.*

In presenting the results of our experiments it would be manifestly impracticable to print the protocols in full. They are sufficiently illustrated by a few examples in Appendix B. For purposes of discussion I have compiled special tables of the results bearing on each question. These will be presented in due order, each followed by a short summary. I shall first analyze the main phenomena and follow this by the analysis of such factors as might conceivably modify the results. The doses throughout refer to grams of drug per kilogram of body weight.

I. RELATION OF THE DOSE AND MAXIMAL EFFECT.

The relevant data for these drugs are brought together in Tables 1 to 3,* the animals showing each effect being arranged in the respective columns. The conclusions are presented in Table 4.

TABLE 4.—SUMMARY OF DOSAGE AND EFFECT.

	Chloral.	Isopral.	Bromural.
Dosage producing sound natural sleep in most animals	0.09-0.15	<0.09-.010	0.10-0.15
Dosage producing effects varying from sleep to coma	0.18-0.25	0.11-<0.18	0.25-<0.35
Dosage producing deep coma in all animals	0.30 up.	<0.18 up.	<0.45 up.
Dosage producing the lowest apparent fatality	0.15	0.11	
Dosage producing the lowest true fatality	0.35	0.25	<0.45
Dosage just fatal to most animals	0.42-0.45	0.25-0.30	0.45-0.50
(Probable mean=)	(0.44)	(0.25)	(0.45)
Largest dose survived	0.50	0.35	0.45

Difference from the figures of Impens: The conclusions as to isopral and chloral are radically different from those of Impens, as will be seen from the following table:

CHLORAL HYDRATE.			ISOPRAL.	
Dose.	Impens.	Sollmann.	Impens.	Sollmann.
Hypnotic.	0.2	0.09-0.15	0.09	0.09-0.10
Just Fatal.	0.25	0.44	0.4	0.25

The differences are perhaps explainable on the basis of different methods of treating the experimental results: I have drawn my conclusions on the basis of impartial averages from an extensive series of results; Impens appears to have drawn his conclusions from a few entirely exceptional cases.

He defines the "minimal effective dose" of a hypnotic as "the smallest possible quantity of the drug which may induce sleep" (in any animal) and asserts that this is 0.2 gm. per kg. in chloral. In reply, I have never failed to obtain sleep with 0.09 gm. or less than one-half of his minimum. Similarly, he defines the "toxic dose" as the smallest dose which ever causes death; both definitions are, of course, framed for exceptions and not for averages, and the definition for toxic dose is especially objectionable.

Accepting it, however, for the sake of argument, both his toxic doses are wrong. That for chloral would be nearly twice too high, if we count my animal P 111 as a chloral fatality, or 50 per cent. too low if we do not. The toxic dose for isopral he places at 0.4, but in my hands two animals out of three died with doses as low

5. The general table in Appendix A shows the distribution of the experiments

*These, as well as some of the other tables, will be reproduced in the Transactions and in reprints.

as 0.25; and if we count the late deaths against isopral, the lowest recorded fatality would be 0.11 gm.

Impens judges the relative safety of a drug by its "toxic quotient," which he defines as the toxic dose divided by the therapeutic dose. The larger this quotient the greater is the margin of safety. This appears perfectly logical; but it must be remembered that the toxic quotient not only retains every source of error in determining the individual doses, but it may even double them. As I have shown, a limited number of experiments may easily lead to figures which are 50 per cent. or more out of the way. Even with our extensive series the results may easily be 15 per cent. from the truth. Should the therapeutic dose be 15 per cent. too high and the toxic dose 15 per cent. too low, or vice versa, then the error in the "toxic quotient" would be exactly doubled, i. e., it would be 30 per cent.

When it is remembered that Impens apparently contented himself, at least in some cases, with an approximation of 50 per cent. in determining the therapeutic dose,[7] the differences which he reported in the toxic quotient of isopral and chloral for most animals (generally less than 33 per cent.) appear a very inadequate basis for his claims of superior safety. *The toxic quotient is of value only if the differences transcend the possible limits of error.* In the cat Impens' figures would lead one to suppose that this ideal should have been reached. He calculates the quotient for isopral as 0.40 ÷ 0.09 equals 4.4; for chloral as 0.25 ÷ 0.2 equals 1.25. As I have shown, his doses, unfortunately, are far from correct. According to my averages, the quotient would be 0.25 ÷ 0.10 equals 2.5 for isopral; and 0.44 ÷ 0.15 equals 3.0 for chloral—in other words, chloral would be the safer. As a fact, however, the difference falls within the limits of error and I would consider that the quotient is essentially the same for all three drugs.

II. COMPARISON OF CHLORAL AND ISOPRAL ON THE SAME ANIMALS.

To judge in how far the averages deduced from a series of animals might be invalidated by individual difference of susceptibility, we made several series of experiments in which both drugs were given alternately to the same animal with intervals of several days' rest. This method presents the inconvenience that only a very few doses can be tried out on each animal, but it serves effectually as a check on the methods of averages. I take the opportunity to present in Appendix B a few protocols which illustrate the methods of observations in all my experiments.

Comparing the cases with "therapeutic doses" (isopral 0.09 to 0.11) it is seen that the quotient (dose of chloral divided by dose of isopral) required to produce equivalent effects is in no instance less than 1 or greater than 2. In the animals F, Q, H, M and N, in which the greatest accuracy was reached, it ranged between 1.7 and 2. The average of these figures, 1.85, is probably correct with a limit of error of ± 10 per cent. This average shows that the figures estimated in the preceding section from experiments on different cats, namely, 1.5 to 1.8, is substantially correct. These experiments also show that, on the same cat, *the fatal dose of isopral is always smaller than the fatal dose of chloral,* i. e., the opposite of what is claimed by Impens.

7. Compare the determination of the "effective dose" of isopral for the frog, Therap. Monatsch, 1907, xvii, p. 471.

III. RAPIDITY AND DURATION OF THE ACTION.

Some of the most important practical differences between the three drugs refer to the rapidity and duration of their action. To arrive at reliable conclusions these phenomena were recorded for each experiment.

Summary.—With therapeutic doses the onset and culmination of the effects and the start and completion of recovery are most rapid with isopral, nearly as rapid with bromural and markedly slower with chloral. This is in full agreement with the clinical reports. These differences are less pronounced as the doses are increased, but they persist to some extent as concerns the development of the symptoms and the first signs of improvement. The duration of the coma is shortest with bromural and nearly equal for isopral and chloral. Complete recovery from nearly fatal doses is most prompt with bromural and slowest with isopral.

With small doses, death is always acute with chloral, remote with isopral. The cause of this difference will be discussed later. With typically fatal doses, the fatalities are predominantly acute with isopral, slow with bromural and rather evenly distributed with chloral. Acute death occurs more rapidly with isopral than with chloral or bromural. Death after

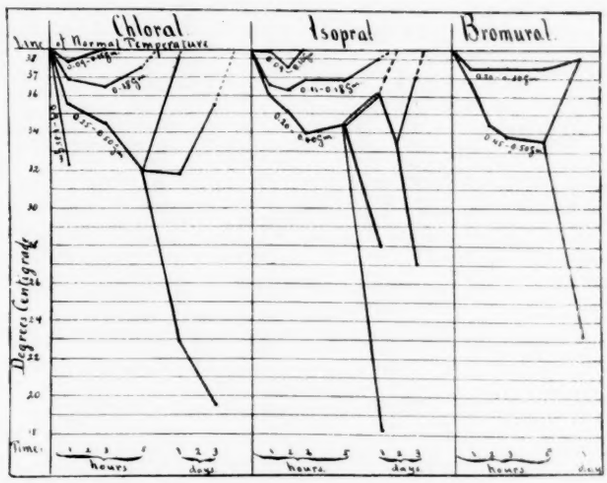

Fig. 1.

intervening recovery is conspicuously more common with isopral than with the other drugs, in harmony with its more severe after-effects.

IV. EFFECT ON TEMPERATURE.

The similarity in the curves of the three drugs is striking. All tend to produce a fall of temperature and in the same degree, proportional to the degree and duration of the motor effects, rather than directly to the dose. When the muscular tone is well preserved, as in the "deep sleep," the fall is slight (0.5 C.) and transient (maximum in 1 to 2 hours, normal in 3 hours).

In the doses which produce "light coma," i. e., when there is considerable relaxation, but when the paralysis is incomplete and the reflexes are more or less preserved, the temperature falls by 2 degrees (C.) in one to two hours and returns to normal somewhat more slowly, but is generally normal on the following morning. With bromural the muscular system preserves a much better tone, and consequently the temperature in this stage falls by only 1 degree (C.). There is with all the drugs a tendency to react against the fall of temperature by shivering.

With doses which produce "deep coma" the temperature drops as much as 6 degrees (C.) in five hours with chloral, 4.5 degrees (C.) in three hours with iso-

pral, and 6 degrees (C.) in five hours with bromural. The degree and the rate of this fall are practically independent of the dose, so long as deep coma is produced. The further course is also determined solely by the persistence of the coma, i. e., of the motor paralysis, recovery to the normal temperature coinciding with the passing of the comatose conditions. If the coma persists the temperature continues to fall, and it does so even if some degree of muscular motion is restored. The lowest point reached by this progressive fall depends mainly on the surrounding temperature, animals in this condition behaving exactly like cold-blooded animals. Some remarkable temperatures were observed which seem worthy of record.

V. EFFECT ON THE RATE OF RESPIRATION.

These observations are analyzed and plotted exactly like those made on the temperature, as shown in Table 13 and Figure 2. The doses placed in the same group gave practically identical averages.

Chloral and isopral often produce a short primary increase of respiration, more often noted with the smaller doses. It is presumably due to the nausea. This primary increase was observed with chloral, 0.09 to 0.30 in 5 cases out of 17; 0.35 to 0.50 in 1 case out of 6. In isopral, 0.09 to 0.11 in 4 cases out of 9; 0.18 to 0.40 in 2 cases out of 12. The examination of the curves shows the following:

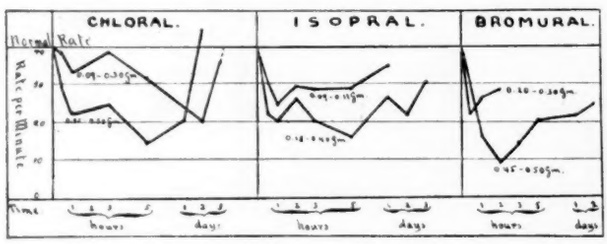

Fig. 2.

With small doses, the curves run differently. The chloral causes much less slowing on the day of administration and considerably more on the succeeding days. The lesser immediate effect I am again inclined to refer to the greater nauseating action on the first day; while the greater depression on the succeeding days coincides with the more lasting action. The curves for the larger doses show that the effects of chloral and isopral are qualitatively and quantitatively identical. Bromural produces the greatest immediate showing, which I am inclined to refer to the absence of nausea.

The mere count of the respiration can be conceded but a very limited value, as it may be compensated for by an increase in the respiratory excursions. Even were these measured, however, the comparison of the relative effects of the drugs on the respiratory center would be very difficult on account of the complicating nausea. So far as the count throws any light on the question, however, the direct effect of these drugs on the respiratory center seems to be quantitatively identical, and proportional to their general narcotic effect.

VI. THE OCCURRENCE OF NAUSEA, EMESIS AND EXCITEMENT AND THEIR INFLUENCE ON THE FATALITY.

More or less nausea and retching were present with all doses of chloral and isopral, while they were conspicuously absent with bromural. The nausea was in some cases accompanied by simple depression, in others by excitement, varying from restless movements to a maniacal condition and convulsions. The emesis generally occurred in from fifteen to thirty minutes, i.e., before the narcosis was complete. The animals retained a good appetite. The inclination to emesis and excitement varied in individual animals. The proportion of cases in which the nausea culminated in actual emesis is shown in Table 14. It will be noted that the emetic effect of isopral for the same dose (O. 18-0.40) is but one-fourth that of chloral, whereas the narcotic effect is one and a half times as great. In other words, for a given degree of narcotic action, isopral causes but a sixth of the gastric irritation of chloral. The same difference is seen when equivalent doses of the two drugs are compared on the same animal. Twelve animals vomited with chloral and not with isopral; while the reverse behavior was never observed. The table also shows that the emetic tendency may be materially lessened by giving the drugs in divided doses. Bromural, however, is vastly superior to either. Emesis was only observed once with this drug, making it doubtful whether even this was due primarily to the bromural.

The nauseant action is particularly undesirable in these drugs, since the weakened heart is not equal to the concomitant excitement. This, I believe, explains the exceptional cases in which chloral proved fatal in small doses. Each of these cases showed convulsive excitement. A very striking instance of the effect of excitement as shown in Experiment I 95.

EXPERIMENT I 95.—Cat of 2060 gm.; 0.15 gm. of chloral per kg. Rather light and restless sleep in 39 minutes. Considerable incoordination. In one hour the animal is somewhat improved. In one and one-half hours it is sleeping quietly, but awakens on snapping the fingers. Its walk is somewhat clumsy. It struggles violently when the thermometer is inserted into the rectum. During the struggle the heart stops suddenly and does not resume. Gasping respirations continue for several minutes. The thermometer registers 37.5. Nothing is found on autopsy to account for the syncope.

On the other hand, the emesis tends to save life; and from this standpoint chloral appears to be a much safer drug than isopral, i.e., the number of cases which recover without treatment from an ordinarily fatal dose is twice as favorable for chloral. This is shown in Table 15. Only the cases in which the drugs were given as a single dose are included.

TABLE 15.—PROPORTION OF CASES WHICH RECOVERED FROM THE ORDINARILY FATAL DOSES.

(The average just-fatal dose may be accepted as 0.44 for chloral and 0.25 for isopral.)

Drug and Dose.	Number of Animals Used.	Vomited and Survived.	Survived Without vomiting.	Died Without Vomiting.	Total Survived.	Proportion of Animals which Survived.
Chloral, 0.45-0.50	11	7	1	3	8	73%
Isopral, 0.25-0.35	17	2	4	11	6	35%

Nothing could illustrate more strikingly than this table the almost criminal looseness of the statement of the promoters of isopral, that it is "the safe hypnotic of the chloral group." On the contrary, *excessive doses of isopral produce death twice as frequently as the doses of chloral of corresponding narcotic effect.*

VII. EFFECT ON WEIGHT.

As has been repeatedly mentioned, animals which recover from large doses of these drugs are very apt to exhibit anorexia and marasmus, which find their expres-

sion in loss of weight. It appears to me that this loss of weight is much more rapid than when food is withheld from normal animals; but the number of controls does not warrant a definite statement on this point. The fact that this effect was so much more common and pronounced with isopral than with chloral, shows that it is not simply the result of gastric derangement, but of a metabolic disturbance; furthermore, the animals generally ate fairly well. Bromural also caused considerable loss of weight.

In analyzing the changes of weight, these were calculated as percentages of the original weight, tabulating both the total change of weight since the animal came under observation and the change occurring after the administration of the dose of the drug. The latter data alone are used in the following summaries. Considering in the first place the gross changes of weight occurring in from two to nine days, the following results were obtained (Table 16):

TABLE 16.—EFFECT ON WEIGHT.

Drug and Dose.	Number of Experiments.	Extremes of the Changes in Weight.	Mean	Proportion of the Experiments showing:			
				Increase of Weight.	No Change of Weight.	Slight Loss of Weight (to 10%).	Severe Loss of Weight (above 10%).
Chloral.							
0.08-0.10 .	6	+6.1 to −4.8%	+2 5 %	50%	17%	33%	
0.15-0.40 .	18	+1.7 to (−25%)?	−7.75%	. . .	. . .	67%	33%
Isopral.							
0.09-0.10 .	12	+4.8 to −10%	−7.75%	17%	25%	58%	
0.11-0.35 .	11	−3.4 to −30%	−15 5%	. . .	. . .	36%	64%
Bromural.							
0.05-0.20 .	11	+4.0 to −9.0%	−5%	9%	18%	73%	
0.25-0.45..	5	0 to −29%	?	. . .	20%	30%	30%

It is seen that the isopral throughout causes a much more serious loss of weight than does chloral; and this holds for small as well as for large doses. Bromural appears to stand intermediate, although there are not sufficient data to form a definite judgment. The loss varies greatly with different animals and does not seem to be proportional to either the dose or the narcotic effect.

These experiments show that the loss of weight if serious, tends to progress for several weeks and requires over a month to return to the normal.

3. *RELATION OF CERTAIN FACTORS TO TOXICITY.*

In this series of experiments, the animals were used without selection, in the order in which they were brought to the laboratory, and they were re-used as needed with the sole stipulation that the narcotic effects of the preceding dose must have completely disappeared. This method of indiscriminate use involves the possibility of several theoretical sources of error; viz., the effect of the age and size of the animals, and the effects of previous doses acting either through modifications of the general resistance or of the special susceptibility. The examination of the actual data shows in how far these factors influenced the results and which of the experiments must be excluded. This exclusion has been practiced in the preceding presentation of the results. I shall now present the data on which it was based. They reveal several interesting features.

I. THE INFLUENCE OF SIZE AND AGE.

The size of cats runs sufficiently parallel to the age, so that the original weight of the animals indicates both factors. This ranged from 650 to 3,500 gms. The animals were arranged in two series, those below 1,500 gms. being classed as kittens, those above this weight as cats. Table 17 shows the number of animals of each class exhibiting a given effect for a given dose.

It will be seen that the results are fairly evenly distributed amongst the two classes of animals. Age and size, therefore, do not materially influence the action of these narcotics, at least within the limits of error. This factor therefore, does not need to be considered.

II. THE INFLUENCE OF REPEATED USE ON THE EFFECT.

A study of Table 18 shows that the previous administration of small doses of either chloral or isopral does not influence the actions of subsequent doses; the previous administration of large doses also has no noticeable effect on subsequent doses, unless there has been a material loss of weight (above 10 per cent.), when the fatality is markedly increased.

The factor of previous use could, therefore, be neglected except when the weight was markedly diminished.

III. THE INFLUENCE OF LOSS OF WEIGHT ON THE EFFECT.

Losses of weight up to 8 per cent. had no perceptible influence on the effects of non-fatal doses (to 0.18 gm. per kg.). The influence of the mortality from larger doses is shown in Table 19.

It is plainly apparent that the mortality is distinctly increased when the original weight had diminished by more than 10 per cent. With a loss of weight of less than 10 per cent., 80 per cent. of the animals recovered; when the previous loss exceeded 10 per cent., only 15 per cent. recovered. As I have previously stated, these cases were excluded in calculating the fatal doses of chloral and isopral.

TABLE 19.—INFLUENCE OF LOSS OF WEIGHT ON MORTALITY.

Loss of Weight.	0	Less than 10 %	10 to 17 %	29 to 30%
Chloral, 0.25 to 0.42.				
Fatal.	2	0	2	1
Not Fatal.	7	1	1	0
Isopral, 0.20 to 0.25				
Fatal.	1	0	2	1
Not Fatal.	3	1	0	0

The increased mortality after serious loss of weight is the more striking when it is remembered that the doses were calculated according to the weight at the time of administration; so that an emaciated animal would receive a smaller absolute dose than an animal in good condition. Since the weight of the central nerve axis diminishes but little even in advanced starvation, the dose per unit of nerve-weight would be very considerably less in a starved animal. That emaciated animals are less resistent to narcotics has already been confirmed by Mansfield.[8] His explanation was, that the body fat attracted a considerable part of the lipoid-soluble poisons and thus protected the brain. Cloetta,[9] however, has shown that the converse experiment, i. e., increase of body fat, does not offer any protection. The explanation therefore, is the less satisfactory but more probable one of lessened general resistance.

8. Archiv. internat. de pharm. et Ther., 1905, xv, p. 467.
9. Ibid, 1907, xvii, p. 1.

4. *SUMMARY.*

QUANTITATIVE EFFECTS AND DANGER.

The effects of these narcotics can be divided into a limited number of fairly well-defined stages, but no criteria were found by which to distinguish the gradations of the effects within each stage. A fairly large range of doses, therefore, produces apparently identical effects; there are, furthermore, considerable variations in the individual reactions of different animals. A fair comparison between different hypnotics can, therefore, be made only on the basis of the averages of a considerable number of experiments, or by trying the several drugs on the same animal. The comparison of a few exceptional or artificially selected results is wholly misleading. The conclusions of Impens are, therefore, entirely unjustified; those of Hatcher were much nearer to the truth.

The determination of the true "minimal hypnotic dose" of a drug is impossible, at least on cats. The smallest doses which produce effects sufficiently definite to serve as criteria, are relatively much larger than the doses which would be used therapeutically to induce sleep.

If the dose of chloral required to produce a given effect is taken as 100, that of isopral would be about 60 (as stated by Hatcher) and that of bromural about 100. The bromural narcosis is, however, less profound. These ratios hold for all doses, small and large. The toxic quotient of the three drugs is about the same. The contrary conclusion of Impens is based on highly exceptional results. In practice, however, chloral is only half as dangerous as is isopral since excessive doses are generally expelled by vomiting, and since the subsequent very dangerous cachexia is less pronounced. On the other hand, relatively small doses of chloral do at times cause sudden death, namely when there is great excitement. The statement of the promoters that isopral is "the safe hypnotic of the chloral group" is, therefore, as previously stated, almost criminally misleading. Large doses of bromural are nearly equally as dangerous as corresponding doses of chloral, so that it cannot be called "absolutely harmless." Since it is only advised, however, for the mildest cases, the temptation to give large doses would be absent.

RAPIDITY AND DURATION OF ACTION.

The hypnotic and motor effects of therapeutic doses of isopral and bromural set in and pass off much more quickly than those of chloral. The difference grows less pronounced as the dose is increased. The cachexia after large doses is considerably more profound and lasting after isopral than after the other drugs.

EFFECTS ON SPECIAL FUNCTIONS.

Temperature: The effect of the three drugs on temperature is quantitatively and qualitatively very similar. It is proportional to the degree and duration of the muscular paralysis, rather than to the dose. In the deep stages of coma, the heat mechanism resembles that of cold blooded animals. Very low temperatures (15.5 C.) were recorded in some cases. Animals whose temperature fell below 30 C. did not recover, even when artificial heat was supplied.

Respiration: The direct effects of the three drugs on the respiratory center, as judged by the rate of respiration, appear to be qualitatively and quantitatively identical.

Gastric Irritation. Bromural does not produce perceptible gastric irritation. Isopral and chloral both cause nausea or vomiting. This irritant effect appears to be about six times as large for chloral as for isopral, referred to the dose required to produce the same degree of narcosis.

Cachexia: Excessive doses of all three drugs cause a profound cachexia, evidenced by the persistent loss of body weight. This deleterious action is about twice as great with isopral as with chloral.

FACTORS INFLUENCING RESISTANCE.

Age, size and repeated administration do not influence the susceptibility. Emaciation, however, lowers the resistance markedly.

PRACTICAL CONCLUSIONS.

The claims for the superior safety of isopral are totally unjustified. It differs from chloral mainly in the lesser dose (½ to ⅔) required to produce a given effect; in the quicker and shorter action, and in producing less gastric disturbance.

Bromural also acts more quickly and less persistently than chloral. The action of therapeutic doses is, moreover, less profound. There is no gastric irritation. Larger dose would be equally as dangerous as chloral.

DISCUSSION.

PROF. W. A. PUCKNER, Chicago: Dr. Sollmann has brought out very forcibly the need of controlling all statements made by interested persons, which statements are almost surely bound to be biased to a greater or less extent. A great deal of work of this kind should be done and must be done, and I sincerely hope that other pharmacologists will take up and investigate proprietary drugs. So far there has been a hesitancy. Nobody cares to take up a proprietary product. If one says good things about it one's comments are used as advertising matter, and if one says bad things about it one will be attacked by the owner of the drug. So there has been a tendency on the part of investigators to let alone all proprietary drugs. I think it is the duty of these men, however, to determine for us the real value of such products.

DR. F. E. STEWART, Philadelphia: I think it would be an excellent thing if manufacturers would pass over their products to the Council before they do any advertising at all; then their claims would be founded on facts rather than fancy. Such a course would certainly do a great deal to help this work.

DR. TORALD SOLLMANN, Cleveland: I think this is a good suggestion. It would save a good many heart-burnings.

THE TREATMENT OF SOME FORMS OF LENS DISPLACEMENT OTHER THAN THOSE OF TRAUMATIC ORIGIN.*

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For a better comprehension as to the kind of cases to which reference is made in this paper I will enter on the subject by relating the following cases, classified under four groups. Group I embraces those cases of congenital lens displacement where treatment is sought, either to improve the existing vision, or because it is feared that at some future time the lens displacement may set up grave intraocular disease. Group II embraces those cases where the lens has become not only displaced but cataractous because of chronic intra-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

ocular disease. Group III includes those cases of congenital lens displacement complicated by acute glaucoma. Group IV includes those cases of displaced and cataractous lens that are the result of acute glaucoma.

GROUP I.

O. B., aged 14 years, consulted me May 18, 1898, because of poor vision, which on examination was found to be due to ectopia lentis, the lens in both eyes being displaced upward and slightly inward. Vision of right eye, 10/200, increased to 15/160 by minus D. 2.50 S. Vision of left eye, 6/200, increased to 15/70 with minus D. 2.00 S. The family of which he was a member consisted of father, mother and four brothers and sisters, all with poor eyesight, except the father, and due in each instance to upward congenital lens displacement. April 27, 1904, he again consulted me, and asked that a discission operation (suggested by me at the time of my first examination) be made on one eye. He was led into accepting the operation (1) because he was now teaching school and found his poor vision a decided handicap, and (2) by the circumstance that his mother had been rendered blind in one eye through an attack of acute glaucoma, and later had been obliged, during an attack of glaucomatous disease in the second eye, to undergo an emergency operation for the removal of the lens.

On July 19, 1904, he entered St. Mary's Hospital, where, on the following day, the left lens was needled. The operation was not followed by reaction, and he left the hospital at the expiration of one week. Dec. 24, 1904, and again April 15, 1905, the needle operation was repeated. By April 6, 1906, the lower portion of the lens had been absorbed, leaving a clear pupil and vision 15/40 with plus D. 13.00 S., and improved Nov. 24, 1906, to 15/20, with ability to read finest Snellen fluently with plus D. 15.00 S.

GROUP II.

E. S., a large and well developed man, 28 years of age, consulted me Jan. 13, 1902, with the complaint that he was losing his sight. The family consisted of father, mother and a brother, all with good sight, and he himself distinctly recalls that during school life there were seats in front for short-sighted pupils, but that his seat was always far back of these, and it was not until he was 18 years of age, and while sighting a gun, that he became aware of dimness in the right eye. Thereafter, in shooting he made use of the left eye, vision in which remained good until a few weeks before calling on me, when, after awaking one morning, he discovered it was likewise dim. He denies syphilis and does not recall an injury or previous eye disease.

Examination.—In both eyes there was downward displacement of the lens, tremulousness of the upper portion of the iris, which stood deeper than the lower portion. In the right eye, there was partial cloudiness of the lens, with vision 15/80, improved to 15/50 with minus D. 1.00 S., combined with plus D. 1.50 cylinder axis 90. In the left eye, there was a progressive cataract and vision 15/50, and not subject to improvement. By Oct. 4, 1902, there remained in the left eye only light perception while the cataract had matured, with distinct increase in the downward and forward displacement of the lens.

Jan. 29, 1903, he entered St. Mary's Hospital, where, on the following day, an extraction operation was undertaken under local anesthesia. An upward corneal section was made, followed by iridectomy. Immediately after the latter and before any other step in the operation was attempted, the four recti muscles were thrown into violent contraction, furrowing the eyeball and expelling particles of soft lens matter with considerable, very fluid, vitreous. The greater part of the lens, however, disappeared within the vitreous chamber and no effort at its recovery was attempted. The eye was bandaged and not disturbed until the third day, when the anterior chamber was found re-established and the corneal incision closed. On the seventh day, violent iridocyclitis set up, and a few days later a small hypopyon was seen on the floor of the anterior chamber

Treatment.—Morphia subcutaneously, with hot local applications for pain, and large repeated doses of salicylate of soda. Eventually, the inflammation subsided, leaving a dense membrane occupying the original pupil. Fortunately, at the point where the iris had been excised, there remained in the dense secondary membrane a small round opening, so that vision 15/160 was gained by use of plus D. 10.00 S. Nov. 20, 1905, the sight in the right eye having sunk to the counting of fingers at two feet, and notwithstanding our poor success with the left eye and our telling him that the same unfavorable conditions existed in this eye as had existed in the other, so that the percentage of failure was necessarily greater than after ordinary cataract operation, he requested that I undertake an operation on it for sight restoration. This we did Jan. 3, 1907, making a small discission, albeit the patient was 33 years of age.

Within two hours after the operation the eye began to pain, and during the night the pain became so severe that it was attended by vomiting. Hypodermic injections of morphia brought only partial relief, and there being increased tension, with deep anterior chamber and semi-dilated pupil, an iridectomy was made. The choroido-ciliary inflammation gradually subsided, and at the expiration of eight weeks he had vision 15/200. April 8, and again September 18, the discission operation was repeated, and each time called forth more or less pain, soreness and intraocular inflammation, for the relief of which repeated paracentesis was successfully employed. After the last needling the lens rapidly underwent absorption, and our ultimate restoration of vision was 15/60, with the aid of plus D. 9.00 S., combined with plus D. 1.50 cylinder axis 120. However, in the vitreous humor many floating opacities remained.

GROUP III.

CASE 1.—Mrs. J. B., aged 44 years, mother of the patient reported in Group 1, consulted me April 1, 1898. She stated she had always seen poorly in the distance, and four years ago completely lost the sight in the right eye through a violent attack of pain. At a glance, it was to be seen that the blindness was the result of an attack of glaucoma, the lens being pushed against the posterior surface of the cornea, with widely dilated pupil, atrophic iris tissue and equatorial staphyloma. With the left eye she counted fingers at fourteen feet, and read Snellen D. 1.50 at seven inches. The iris was tremulous below, and the lens was displaced upward and somewhat outward. Beyond a large crescent to the outer side of the optic disc, the fundus was without detectable lesion. On July 20, 1898, the eye began to pain and by the following day the pain became so violent that she had frequent attacks of vomiting while on her way to consult me.

Examination.—Intense circumcorneal injection; great increase of intraocular tension; pupil dilated and distorted by the transparent lens, which had partially escaped into the anterior chamber. Patient was directed to St. Mary's Hospital, where, under general anesthesia, a needle was passed through the outer side of the eye, from behind forward, and the lens secured so that it could not slip backward into the vitreous while attempting extraction. A downward corneal section was made, and the lens removed by a Weber scoop. No loss of vitreous occurred, and the eye rapidly healed, with vision 15/50, with plus D. 13.00 S.

CASE 2.—Mrs. G. W., aged 38 years, and a sister to the preceding patient, consulted me June 7, 1898, when I found small maculæ corneæ in both eyes, due to measles in childhood, large posterior staphyloma, vitreous opacities, extensive disseminated choroiditis and double upward lens displacement. With the right eye she counted fingers at twelve feet, improved to 15/80, with plus D. 5.00 cylinder axis 90. With the left eye, fingers at eight feet, and improved to 8/200, with minus D. 11.00 S. The disseminated choroiditis and vitreous opacity was most pronounced in the right eye. Feb. 3, 1903, she again consulted me, when I found the right eye without light perception, the result of an untreated attack of glaucoma. She remained under observation during the following four months, receiving general treatment for the choroidal disease, then became discouraged over non-improvement, and I did not see her again until Nov. 21, 1905, when she came with an attack

of glaucoma in the second eye. The disease had been permitted to exist five weeks without treatment and not even the perception of light remained in the eye. The severe pain she had suffered had almost disappeared and patient was told we were powerless to give her sight again.

CASE 3.—J. W., the 43-year-old brother of the two preceding patients, consulted me May 28, 1898. He stated that about two years ago, the right eye pained him for a time and then in a day or two the sight, which had always been defective, became much more so.

Examination.—The transparent lens was seen occupying the floor of the posterior chamber, the iris below the pupil was pushed forward, while above it stood deeper and wobbled with every movement of the eyeball. The cornea and vitreous contained opacities, while vision in the eye was reduced to the counting of fingers at seven feet. By depressing the head and placing plus D. 10.00 S. in front of the eye he saw 15/200. In the left eye the lens was displaced upward and outward, and he had vision 15/50, improved to 15/30 with minus 0.50 cylinder, axis 180.

On Nov. 24, 1900, he became aware that he was rapidly losing sight in the left eye and that he recognized the faces of those about him with difficulty. By the following day the eye pained him so violently that he had attacks of vomiting. I found the eye intensely injected, pupil dilated; the lens crowding the iris against the posterior surface of the cornea with great increase of intraocular tension. He still counted fingers with the eye at eight feet. Patient was forthwith sent to St. Mary's Hospital, where the anterior chamber was opened with a v. Graefe knife, and an iridectomy made. The operation was accomplished without wounding the lens or its capsule. After the second day, eserin was regularly instilled into the eye. Uninterrupted healing followed, with retraction of the lens into the lower part of the hyaloid fossa, and the recovery of vision 15/30 by the help of plus D. 16.00 S.

GROUP IV.

W. S., colored, 61 years of age, was admitted by Surgeon B. W. Brown to the U. S. Marine Hospital at this port, because of an attack of severe inflammation in the right eye, which had been treated without relief by a general practitioner some ten days, presumably for iritis. Surgeon Brown made the diagnosis of glaucoma and asked that I verify its correctness. I found the patient suffering great pain with tension in the eye greatly increased, and even light perception extinguished. An iridectomy forthwith executed relieved the pain, but did not restore sight.

Jan. 10, 1905, the left eye became hard and painful, and I was again invited to see the patient and do an iridectomy for glaucoma. This not only relieved his pain but restored sight.

Dec. 18, 1905, he again applied to the hospital because of failure of sight and was admitted by Surgeon J. B. Stoner, who in the interim had assumed command at this port, and it was through the kindness of Surgeon Stoner that I was again permitted to see the patient. I found the lens cataractous and slightly displaced downward and forward.

In October, 1906, the cataract having matured, I undertook its extraction. Notwithstanding a general atheromatous condition of the blood vessels and an irregular heart, we were obliged to operate under general anesthesia, because the patient was so excitable and nervous that mere contact of the hand with his face called forth violent starting up and excitation. On completion of the corneal section, made upward, the vitreous at once prolapsed into the wound so that the lens was extracted by aid of the Reisinger double hook. Uninterrupted healing followed, and, while there had been loss of considerable vitreous fluid, vision 15/50 resulted with plus D. 8.00 S., combined with plus D. 3.00 cylinder, axis 40.

In the treatment of cases embraced under Group I we have to consider, first, the amount of vision obtainable by means of correcting lenses and if it suffices for the person's calling in life. This being impossible of accomplishment, we may next consider operative interference, which may be iridectomy, discission or extraction. The age of the patient, the degree of displacement, the size of the lens and the amount of vision obtainable, either with or without correcting lenses, after complete mydriasis, enables us to decide for or against iridectomy.

Since congenital lens displacement is almost invariably upward, or upward and either to the nasal or temporal side, it follows that the point of election for iris excision would be below; hence, the possibility of the lens at some future time undergoing secondary downward displacement, either through elongation of its suspensory ligament or solution of its fibers must not be overlooked. Were this to take place, the benefit derived through the iridectomy would, for the greater part, be lost.

The family history of the forbears, as illustrated in Group III, may disclose this tendency, and I can not too strongly urge that it be carefully inquired into before the choice of iridectomy is finally made. Discission is proper when the patient is under 25 years of age and finds his vision insufficient for his needs. However, I have had the experience that discission was technically impossible of accomplishment, because the lens was so movable that it gave way under the needle without our being able to open its capsule. Extraction is naturally resorted to when it has been decided that operative interference is in place and that neither iridectomy nor discission is the thing to do. It is especially to be practiced in patients over 35 years of age.

Group II embraces a class of patients where the displaced lens is opaque and complicated by pathologic intraocular changes, so that in the choice of operative measures we must elect to do either discission or extraction. After the age of 25 my preference is for extraction, preceded by preliminary iridectomy. If the result is unsatisfactory and I am satisfied that the lens is capable of absorption through needling, I should elect to do this on the second eye rather than to extract. Before the age of 25 years, and provided the tendency to excitation of active intraocular inflammation is not too great, one may prefer the needle operation. A word of caution: Do not attempt to better a fair result through division of secondary membranous cataract when the vitreous contains opacities that in all likelihood will be increased thereby. The obtainable vision in this group will often leave much to be desired, and we must exercise care at the outset and not lead the patient to expect the impossible.

For the cases embraced under Group III, either iridectomy alone, or combined with extraction, must be considered. The position of the dislocated lens, whether it will likely be retracted again into the hyaloid fossa, whether one has wounded the lens or its capsule during the performance of the iridectomy, and whether the lens was previously, in part, opaque or not, must serve in deciding which operation it is best to make.

For the cases in Group IV, only extraction can be thought of in the restoration of sight, and since there is the added danger of the extraction being complicated by intraocular hemorrhage, the prognosis at the outset must be a guarded one. Preliminary iridectomy, if one has not already been made, is to be recommended, and if the intraocular tension is still suspiciously high, sclerotomy may be done ere attempting extraction of the cataractous lens.

DISCUSSION.

DR. J. L. THOMPSON, Indianapolis: In all the cases which I have seen the displacement has been upward and outward, directly outward, or downward and outward. In not a few

the lens would swing outward and backward like a door on its hinges. All of these patients were myopic. In two of them (cousins), the lenses were subsequently displaced downward, when the myopia gave place to a hyperopia equal to that found after an extraction for cataract.

Clinical Notes

FLEAS ON RODENTS AND MEN ON THE PACIFIC COAST.

WILLIAM B. WHERRY, M.D.
Bacteriologist to the San Francisco Board of Health.
SAN FRANCISCO.

I am unaware that any flea determinations made on the Pacific Coast have been published where they would be accessible to the medical profession generally. Another reason for publishing this note is the importance of recording the seasonal prevalence of fleas occurring on rats and men in a focus where plague exists.

During the months of August to November, 1907, when acute plague was present in greatest degree, I collected about a thousand fleas from rats and men and sent them to Prof. Carl F. Baker, Para, Brazil, who is recognized as the greatest authority on American *Siphonaptera*. He will report on these later.

In October, 1907, Mr. M. B. Mitzmain[1] published a preliminary note on rat fleas, collected in San Francisco, Oakland and Pt. Richmond, with the following determinations:

Ceratophyllus fasciatus (Bosc.) 32 females, 31 males.
Ctenopsyllus musculi (Duges) Baker, 8 females, 4 males.
Pulex pallidus (Tsch.) 10 females, 4 males.
Ctenocephalus canis (Curtis) Baker, 12 females, 5 males.
Pulex irritans (Linn) 2 females, 2 males.

I wish to add the following determinations, kindly made for me by Mr. R. W. Doane, under the direction of Prof. V. L. Kellog, at Leland Stanford Junior University:

Date.	Host.	Flea.	Females.	Males.
Nov. 1907-Feb. 1908.	On Mus decumanus.	Loemopsylla cheopis (Roth. 1903.)[2]	23	19
	On Mus decumanus.	Ceratophyllus fasciatus.	81	16
	On Mus decumanus.	Ctenocephalus canis.	2	
	On Mus musculus.	Ctenopsyllus musculi.	1	5
Oct. 1907-Feb. 1908.	On man, beds and bedding.	Pulex irritans.	210	124
		Ctenocephalus canis.	1	1
		Ceratophyllus sp. (?)		2

The fleas from human beings were collected from themselves by medical inspectors visiting plague-infected houses; most of them by a laboratory assistant, who lived in the worst infected district, and by nurses at the plague isolation hospital. It will be noted that in this series only two specimens of an undetermined species of *Ceratophyllus* were found on human beings.

During August and until December, 1907, fleas could be found with comparative ease on rats brought in for bacteriologic examination. Most of these rats had been drowned and soaked in kerosin or some disinfecting solution. Any percentage of infestation based on such determinations was obviously so erroneous that it was not attempted. It may be of interest, however, to know that during September, 1907, as many as 181 fleas were collected from two rats, which were found dead. The markedly greater infestation of particular rats was not only noted at this time when plague was epidemic, but later in February, 1908, in the "off season," when as many as 75 fleas were collected from a rat, though at this time there was a very noticeable reduction in the number of human and rat fleas.

During May, 1908, while temporarily acting as assistant surgeon U. S. Public Health and Marine-Hospital Service, under the direction of Dr. J. D. Long, in charge of the situation at Oakland, I started estimating the percentage of rat infestation at the very beginning of the true flea breeding season, taking all the precautions observed by the last Indian Commission to prevent the escape of the fleas. The figures of these estimations will be forwarded to the Surgeon General, but I might state that during the month of May less than one flea to each rat was found and that by far the most prevalent species was *Ceratophyllus fasciatus*.

It may be appreciated by those who have not seen the reports of the last Indian Commission, if it is stated here that most of their successful experiments in the transmission of plague were conducted with *Loemopsylla cheopis;* two experiments with *Ceratophyllus fasciatus* were also successful. All of the twenty-seven experiments with *Pulex felis*, the cat flea, failed. Only three out of 37 experiments with the human flea, *Pulex irritans*, were successful. However, this low percentage was explained by the fact that human fleas do not thrive well on rats and guinea-pigs.

I am indebted to Drs. W. I. Terry and Agnes Walker and Miss K. C. Wynn for assistance in the collections of fleas.

936 Lake Street.

1. Monthly Bull., California State Board of Health, 1907, iii, 38.
2. In a Revision of the Non-Combed Eyed Siphonaptera Jordan and Rothschild place the fleas previously termed *Pulex Cheopis* (Roth.) in the new genus *Loemopsylla*. The fleas described above by Mitzmain as *Pulex Pallidus* (Tsch.) should probably be counted as *L. cheopis*. Jour. Hygiene, 1908 (Parasitology, Supplement No. 1.)

LONG LACTATION.

DOUGLAS H. STEWART, M.D.
NEW YORK.

This case is reported because it is unusual and curious and may be of interest to the statistician:

Mrs. H. was delivered of a girl in February, 1902. The child is now living and of average size, weight and strength. The mother's right breast is still secreting milk, six years, four months and some days after delivery. There is no history of pregnancy save as above, but plastic and retro-flexion operations have been performed since the confinement. The quality of the milk seems to correspond with that usually found two months after ordinary labor. The quantity is small, yet two teaspoonfuls are easily obtained at a milking.

The mother's statement that the secretion has been constant throughout the whole period is borne out by female relatives, who have been assuring her all along that the state of affairs was unnatural and must, therefore, be wrong. Finally, as the breast was a little tender, she consulted me.

The breast is small and has some enlarged milk ducts; otherwise it does not seem abnormal save in milk-formation. The child was not nursed, the reason assigned being that the mother did not have enough milk. Attempts to get the child to the breasts were not continued because of short nipples.

Bimanual examination reveals no unusual conditions of uterus or appendages.

128 West Eighty-sixth Street.

A NEW FORM OF SACCHAROMETER FOR USE WITH FEHLING'S SOLUTION.

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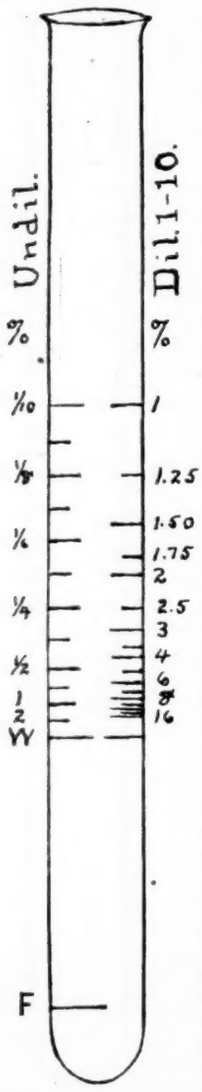
HARRISBURG, PA.

The idea of this saccharometer was suggested by the following passage from Tyson's "Practice of Medicine":

> Fehling's solution is so composed that if an equal volume is exactly reduced by an equal volume of urine, that urine contains ½ of 1 per cent. of glucose; if by half bulk, 1 per cent.; if twice the bulk, ¼ per cent., and so on. Should the urine contain more than 1 per cent. of sugar, it should be diluted one to ten and the result multiplied by ten.



New saccharometer.

After making a number of quantitative tests for glucose by Fehling's clinical method, while resident physician at the Germantown Hospital, I found that I could tell with some degree of accuracy the percentage of glucose in a specimen merely by the depth of the solution in the test-tube when the reaction occurred, for in making the tests I used 5 c.c. of a mixture of one part Fehling's solution and four parts water, the diluted Fehling's solution, therefore, being of the same depth at the beginning of each test.

Because of this fact, together with the suggestion offered by the above passage, it occurred to me that were a test-tube marked at the depths of 6, 7, 8, 9 and 10 c.c., 5 c.c. of the diluted Fehling's solution (containing 1 c.c. of the undiluted solution) being introduced and the sugar test performed in the usual manner, the marks would indicate 1/2, 1/4, 1/6, 1/8 and 1/10 per cent. of glucose respectively, the reading being taken from the surface of the solution when the reaction occurred.

For example, if when the reaction occurred the surface of the solution stood at the 7 c.c. mark, that is, if 2 c.c. of urine had been required, that urine would have contained 1/4 per cent. of glucose. If, however, the urine contained more than 1/2 per cent. of glucose, i. e., if when the reaction occurred the surface of the solution was below the 6 c.c. mark, the urine must needs be diluted with nine parts of water, the test being repeated with the diluted urine and the result multiplied by 10.

Thus if the reaction occurred when the surface of the solution stood at the 9 c.c. mark, that is, if 4 c.c. of the dilute urine had been required, the urine would have contained 1.25 per cent. of glucose, as shown by multiplying 1/8 by 10.

The completed saccharometer, as shown by the cut, is graduated in two columns, one for urine containing less than 1 per cent. of glucose, which is used undiluted; the other for urine containing over 1 per cent., which must be diluted. The mark "F" is placed at the depth of 1 c.c. and the mark "W" at 5 c.c.

The column marked "Undil." is graduated according to the above description. In the column marked "Dil. 1-10" the mark "1%" is placed at the depth of 10 c.c. or 5 c.c. above "W," as 5 c.c. of the diluted urine contains 0.5 c.c. of the undiluted. The mark "2%" is midway between this point and "W," or opposite the 1/5 per cent. mark of the other column, and so on. It will be seen that by multiplying any number in the "Undil." column by 10 it will give the number at the corresponding level in the other column. For instance, 2.5 per cent. is opposite 1/4 per cent., 5 per cent. is opposite 1/2 per cent., and so on.

The results of the tests by this instrument are found to correspond to the results obtained by the polariscope, by Einhorn's saccharometer and by Robert's differential density method. The apparatus simplifies the technic of the quantitative test with Fehling's solution by eliminating the necessity of accurately measuring the amount of urine added while performing the test and doing away with any subsequent calculation, for by the graduated scale, when the characteristic reaction occurs, the percentage of sugar may at once be observed.

The test is carried out by filling the saccharometer to point "F" with Fehling's solution and adding water to point "W." This solution is boiled, and if no precipitate appears the test is carried on in a manner similar to the qualitative test, a few drops of the suspected urine being added at a time, boiling and shaking after each addition.

In case there is more than 1 per cent. of sugar the urine may be diluted by filling the saccharometer to the 1/8 per cent. mark with water and adding the urine until the 1/10 per cent. mark is reached. The diluted urine is then poured into a suitable vessel and the test carried on as before, reading the per cent. of sugar from the scale marked "Dil. 1-10."

Fortunately the urine in most cases of glycosuria contains more than 1 per cent. of glucose, for the test is much more accurate with the diluted urine than with the undiluted.

To procure greater accuracy in making the test 1 c.c. of Fehling's solution may be placed in the saccharometer by a 1 c.c. pipette instead of pouring in the solution to mark "F," or 0.5 c.c. of Fehling's solution No. 1 and 0.5 c.c. of Fehling's solution No. 2 may be separately introduced into the saccharometer by a graduated 1 c.c. pipette.

For convenience in the laboratory where many tests for glucose are made daily a mixture of one part of Fehling's solution to four parts of water may be made up for the day's use. In making the routine sugar analyses the saccharometer may be filled to "W" with this diluted Fehling's solution and the test carried on similarly to the qualitative test when, if sugar be found, the amount is immediately known.

1705 North Front Street.

PAINLESS TONSILLECTOMY AND ADENECTOMY WITH QUININ ANESTHESIA.

EDWARD J. BROWN, M.D.
MINNEAPOLIS.

Some months ago[1] THE JOURNAL reviewed the experimental work of H. Thibault with infiltration anesthesia by quinin. It at once struck me that this might be the ideal anesthetic for tonsillectomy. I have used quinin hydrochlorid in 3 per cent. solution during the

1. "A New Local Anesthetic," by H. Thibault, Jour. Arkansas Med. Society, September, 1907. Abst. in THE JOURNAL A. M. A., Nov. 16, 1907, p. 1719.

succeeding months in all my tonsillectomies in older children and adults with very great satisfaction. In one case I painted the greatly enlarged right tonsil of a 12-year-old boy once with 1 per cent. holocain and then injected into the pillars and deep parts of the tonsil not to exceed 70 minims of the quinin solution and 10 minims of a 1 to 1,000 adrenalin solution. The pillars were separated, the tonsil drawn forcibly through the No. 10 wire loop of a Peters' snare and cleanly removed in its capsule. Practically no blood was lost and the boy at once exclaimed: "It did not hurt a bit."

With a curved and reinforced needle three and one-half inches in length, made for the purpose, I have in a few cases of manageable patients injected the above solution into adenoids, the soft palate being drawn forward with a retractor. While this has proved less satisfactory than in case of tonsils, since it is much more difficult, it has probably rendered the adenectomies less painful than after the repeated painting with 20 per cent. solution of cocain. In most of these cases the injection has been preceded by a single painting with 1 per cent. holocain.

In a few cases of submucous nasal septum operations I have injected the quinin solution freely and found that the operation was rendered entirely painless with the use of very much less cocain or holocain.

In the removal of a large, pigmented and painful mole from the neck of a 71-year-old woman suffering from recurrent carcinoma the solution was injected, the mole removed by an elliptical incision and the wound closed. The patient remarked that the operation was much less painful than under similar operations with cocain infiltration.

I believe that quinin in solution offers a means of local infiltration anesthesia which is ideal in safety, efficiency, convenience and cheapness.

39 Syndicate Block.

COAL-TAR IN CHRONIC ECZEMA.

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KANSAS CITY, MO.

I desire to call attention to the value and efficiency of common coal-tar in the treatment of certain types of eczema. This substance, a dark, thick, semi-liquid, is obtained as a product of the dry distillation of bituminous coal and contains a number of active chemicals, carbolic acid and creosote being among the most important. It can be purchased from any of the large roofing or paving companies for about 25 cents a gallon.

It is particularly indicated in the chronic, recurrent form of the disease in which the skin is dry, cracked and scaly, with considerable papillary hypertrophy and but slight thickening of the outer layers of the epidermis. Eruptions of such a type are frequently seen about the knuckles, especially as a sequel to repeated attacks of an occupation dermatitis, or are at times manifested without apparent cause on the shins, forearms or other parts of the body. In these cases I have found this remedy much superior to salicylic acid and like keratolytics.

It is applied, undiluted, on smooth pieces of cotton cloth, these being fixed in place by means of bandages or adhesive plaster. At the end of twenty-four to seventy-two hours there is a resulting exfoliation of the superficial strata of the corneum and the outer scales can be easily rubbed off. If the reaction is very marked, an infrequent occurrence, the inflammation can be readily subdued by means of plain or carbolized zinc oil (carbolic acid 5.0, zinc oxid 55.0, olive oil 40.0). The application of the tar can then be repeated if necessary.

It can hardly be possible that so common a substance possessing such valuable therapeutic properties has never before been employed in dermatology. If it has I have been unable to find any record of the fact. At any rate, it is of sufficient worth and reliability to merit a permanent place in the therapy of one of the most troublesome of all skin affections.

Therapeutics

THE LENHARTZ TREATMENT OF GASTRIC ULCER.

Dr. Samuel W. Lambert, New York (*American Journal of the Medical Sciences*, January, 1908), describes this treatment and believes that it is an advance in the therapy of this disease. Lenhartz published the results of his treatment in January, 1904, but the treatment did not at first receive the attention that it deserved.

Instead of a starvation period with rectal alimentation, Lenhartz's treatment aims to furnish more nutrition to the patient and improve the general condition and thus favor the healing of the ulcer. It also aims "to prevent distention of the stomach by a limitation of the size of each portion of food taken and of the amount of fluids taken and by the use of ice applications externally." And lastly it aims "to prevent the action of the excessive hydrochloric acid on the ulcer by combining it with food albumin and by the use of bismuth subnitrate internally." These objects are accomplished as follows: By giving the patient nourishment every hour, and this nourishment concentrated and rich in albumin so that "the acid of the gastric juice will be rapidly combined with the food proteid." The food should be slowly and completely masticated, and this is best accomplished by feeding the patient "in teaspoonful amounts and by never allowing him to feed himself during the first two weeks of his treatment." Three or four weeks' rest in bed ordinarily must be insisted on. When there is hemorrhage an ice bag to the epigastrium is recommended, and bismuth subnitrate internally. Iron should be given later for the subsequent anemia.

"The food given should be fresh milk, iced; raw eggs (the whole egg is beaten up and iced). Both the milk and the egg are prepared in covered glass tumblers, surrounded by cracked ice, and kept at the bedside. The feeding spoon is also kept iced in the same manner." If the patient prefers, Lambert allows a mixing of the eggs and milk and feeding the mixture instead of the usual alternation as advised by Lenhartz. After the third day, granulated sugar is added to the eggs. On the sixth day "raw scraped beef, boiled rice and zwieback prepared in the usual manner" are given. Lambert substitutes cooked, chopped chicken for the raw ham in the treatment of Lenhartz. Finally butter is added to the diet. After the tenth day Lambert allows a broiled chop, beefsteak, or chicken as a substitute for the raw beef. Later ice cream is added and the zwieback is changed to toasted bread, and other cereals take the place of rice. For the first ten days of the treatment the food is given hourly from 7 in the morning until

9 at night. Lambert found advantage in the Lenhartz routine feeding, though, of course, not so long continued, in several patients with hyperchlorhydria who did not have peptic ulcer.

From the recorded experiences Lambert's conclusions seem justified, viz., that while the Lenhartz treatment does not always perfect a cure and should not take the place of surgery when dangerous hemorrhage has occurred or an ulcer is recurrent, it seems to cure a patient more pleasantly than the starvation method; the patients are in better condition after the treatment, as they are really built up by it; there is less need for morphin; there is less vomiting, and apparently less hemorrhage.

SNAKE POISONING IN THE UNITED STATES.

Dr. Prentiss Willson, Washington, D. C., in the *Archives of Internal Medicine*, June, 1908, gives the results of his study and analysis of 740 cases of snake poisoning in this country. The article is complete and should be carefully read, but many of the valuable conclusions arrived at and the sensible interpretation of conditions and the proper management of the poisoning may well be described here.

Snakes may be divided into two large classes, the colubrine and the viperine, the former class being, with few exceptions, absolutely harmless, and in the United States but two members of this colubrine class are venomous or dangerous to man. These are the so-called coral snakes. The viperine snakes are divided into two families, the true vipers and the pit-vipers, all of which are venomous. It is the pit-vipers only, however, that are found in the Western Hemisphere, and they have been so named from "the presence of a pit or fossa at the side of the face below and between the nostril and the eye." New England is almost free from venomous snakes, though the rattlesnakes, varying in species in different parts of the country, may be found all over the United States. The copperhead snake is found in the middle states and the southern states, while the coral snake is found in the southern states and in the southwest. "The water moccasin, sometimes called the cottonmouth, or branch moccasin, is found only in the southern states."

Willson states that "all the pit-vipers, rattlesnakes, copperhead, and water moccasin correspond closely to the popular ideas concerning the general appearance of the poisonous snakes. The head is broad and triangular, and sharply differentiated from the neck. The body is thick and heavy in comparison with its length, and the tail is short and blunt. The three features characteristic of all the pit-vipers and of no other American species, the detection of any one of which establishes beyond all doubt the venomous nature of any given snake are: First, the presence in the anterior portion of the upper jaw of two hollow erectile fangs; second, the pit; and, third, the presence on the ventral surface of the tail of scales undivided in the median line." "In identifying the coral snakes the main dependence must be placed on the presence of the fangs and on the peculiar and gaudy coloring." The importance of immediately deciding that a snake that has bitten a human being is venomous is, of course, understood. When, however, the snake has been killed and perhaps crushed, the difficulty of such decision is increased, and, therefore, the detailed signs above described become important.

Snake bites are becoming more and more infrequent, especially in the settled portions of the country, and the rattlesnake especially is being slowly but surely exterminated. The poisonous venom from the pit-viper causes a profound fall in blood pressure, which is undoubtedly the cause of death. The rattlesnake venom causes a decided fall in blood pressure associated with dilation and congestion of the entire portal system, this resulting in a complete failure of the circulation. The circulatory failure from these poisons is attributed to the depression of the vasomotor center in the medulla. Multiple hemorrhages may occur from snake venoms "due to their disintegrating action on the endothelium of the blood vessels."

The symptoms of snake poisoning are both constitutional and local, and the constitutional, as just described, are largely those of prostration. The rapidity with which the general symptoms occur varies, but they are usually in evidence less than fifteen minutes. During the preliminary stage, of course, the signs of nervous shock and fear are in evidence. Dizziness, muscular debility, especially of the legs, and finally collapse, if much poison has been absorbed, rapidly occur. "The respiration may be either rapid or shallow, or slow and stertorous." The pulse is of low tension, rapid and feeble, and the temperature subnormal. The skin is cold and clammy from perspiration. "Nausea is usually present, and vomiting is of frequent occurrence." Voluntary motion is more or less completely absent, and the mind may become clouded, though at times it remains remarkably clear. Rarely active delirium may be present at this stage of the poisoning. Coma is rare, except as a terminal event in fatal cases. "Involuntary evacuations of the rectum and bladder may occur."

Local symptoms are always present in cases of crotalin (viperine) poisoning, even when constitutional disturbances are absent. Besides the characteristic appearance of the snake bite, viz., "two (occasionally only one) punctured wounds situated in the center of a rapidly-spreading tumefaction," there are soon the usual evidences "of a rapidly-spreading and inflammatory process of severe grade, with markedly hemorrhagic and necrotic tendencies."

Any subsequent feverish process is probably due to the septic condition of the wound, or there might be a short reactionary rise of temperature after recovery from a collapse. The above symptoms occur from the bite of the crotalin series or the poisonous members of the viperine class, viz., the rattlesnakes, copperheads and water moccasins. Poisoning in this country from the small number of colubrine snakes which are poisonous, viz., the coral snakes, occurs so rarely that the symptoms can not be carefully studied. The bites from these coral snakes cause "profound prostration, frequently terminating fatally, probably from paralysis of the respiratory center, and with a characteristic absence of local symptoms."

The specific infection starting from the local inflammation from crotalin poisoning is the serious complication of such a snake bite, if the immediate poisoning does not prove fatal. The recovery from the immediate constitutional symptoms varies "from a few hours to two or three days," and the story then becomes one of septic infection or the healing of a poisoned wound.

The prognosis, of course, "varies with the amount and toxic quality of the venom injected, with the location of the bite and with the age and sex of the patient. The mortality from the coral snake bites, which in this country, as above stated, are rare, is very high and seems to

be more than 50 per cent. The death rate in the United States from snake bite is very small, and 99 per cent. of such deaths are due to the crotalin snakes, or pit-vipers. The probable mortality in this country from snake bite is 10 per cent., and probably acute poisoning from alcohol and later septic infection are responsible for a considerable portion of this percentage. Bites on the head and trunk are much more dangerous than on the extremities, and the mortality in children under 10 years of age is double that in adults.

While the majority of patients recover from the bite without any treatment for the reason that the amount of venom injected is not a fatal dose, still, as this amount can never be determined, active treatment should be given in every instance. The local and general treatment may be discussed separately, but the local treatment is of primary and overwhelming importance. There can be no doubt that the main therapeutic indication is the prevention of the systemic absorption of a fatal dose of venom from the amount, be it large or small, contained in the tissues immediately around the wound, and if this can not be met the outlook for the patient, no matter what line of general treatment is employed, becomes exceedingly grave. The limitation and retardation of absorption, by ligatures and other means, and the removal or destruction of the injected venom, are thus the objects of all local treatment. For these purposes local freezing mixtures or ligatures have been used, and Willson believes that the former, as exemplified perhaps by ethyl chlorid spray, is of little value, and that ligatures where the part can be ligated should be the treatment. Of course bites on the head and body may be temporarily frozen as the only quick means of slowing the circulation and, therefore, absorption. The value of the ligature to the part that can be ligated depends on the length of time elapsed between the receipt of the injury and the beginning of the treatment. As soon as seen the circulation of the part should be absolutely cut off until other local measures can be instituted, and Willson says this is best accomplished by the use "of a series of ligatures between the bite and the heart, at least one of which should be applied to that segment of the limb containing one bone." There is, of course, danger of causing gangrene, especially "in the parts devitalized by the crotalin venom, hence as soon as possible the ligatures should be partially relaxed." If the patient is seen a considerable time after the bite, and constitutional symptoms are in evidence and the local lesion is badly swollen, ligation seems of doubtful utility. On the other hand, ligatures so applied as to impede the return flow of blood and lymph render the absorption more gradual and allow the system to combat the poison and not be overwhelmed by it. Such artificial hyperemia, Willson thinks, does not add to the danger of extensive local necrosis, and should be substituted for the complete stoppage of the circulation as soon as practicable. While cautioning against allowing a limb to be ligated too long, Willson warns against a too sudden resumption of the circulation allowing rapid absorption of the poison. Such a sudden return of the circulation to the part has sometimes caused death from constitutional symptoms. He would advise intermittently relaxing the ligature nearest the heart, letting it become looser and looser until it is entirely removed. The other ligatures may then be taken off in the same way. It would perhaps be rarely justifiable to amputate a prominent part of any limb for a snake bite, at least in this country.

As most patients suffering from snake bite are seen by the physician only after the complete ligation of an extremity for an hour or more, with the distal portion of the limb swollen and discolored, the most advisable treatment at this time seems to be "a dissection of the wound with free multiple incisions throughout the swollen area, together with such measures as kneading and massage of the part, and its immersion in warm, mild antiseptic solutions to promote hemorrhage and escape of serum." While all the venom could probably not thus be gotten rid of, enough might be removed to make the difference between a poisonous and non-poisonous dose, when the circulation of the part is again allowed to take place. Of course such treatment of multiple incisions should be made with care not to cause injuries to tendons or future cicatricial contractures. As to the local antiseptic that should be used, the most important seems to be a 1 per cent. solution of permanganate of potash. In the local management of snake bites the general principles of aseptic surgery should never be lost sight of.

The general treatment of the patient resolves itself into four heads:

"1. To destroy the source of the poison.

"2. To neutralize the poison already in the circulation.

"3. To aid and to stimulate its elimination.

"4. To support the patient."

The first has already been discussed. As to the second indication, Willson says that an antitoxin or "serum treatment of snake poisoning, so far as this country is concerned, does not exist;" consequently our treatment must be directed to combating the toxic effects of the poison by such antidotal treatment as seems indicated. Alcohol as ordinarily used, Willson says, is useless and is in no sense antidotal to or destructive of snake venom. Patients bitten by snakes have recovered from enormous doses of alcohol, but some have undoubtedly succumbed to such doses. Strychnin Willson does not think much indicated in poisoning by American snakes, and especially in crotalin poisoning. The profound lowering of the blood pressure should be met and the shock should be treated by absolute rest with the head low, the body kept warm with artificial heat, and the administration in some manner of suprarenal solutions, probably best by hypodermic injection. One cubic centimeter (15 minims) of a 1 to 1,000 active principle suprarenal solution in water could be repeated in an hour or two, if needed. Physiologic salt solution, either intravenously, by hypodermoclysis, or by enteroclysis, as deemed advisable from the severity of the symptoms, may be used. "This solution may be impregnated with oxygen."

Artificial respiration is of much less importance in the viperine (crotalin) poisoning, i. e., the kind that occurs mostly in this country, than it is in the colubrine poisoning which occurs elsewhere. In other words, as above stated, the colubrine poisoning acts specifically on the respiratory center. However, artificial respiration could never do any harm if it did not save life.

The after-treatment is that of the local lesion, inflammation, or sepsis if it occurred.

LOTION TO SOFTEN THE HANDS OF LABORERS.

The *Druggists Circular*, March, 1908, suggests:

℞.	c.c.		
Glycerini	20		fl3vi
Aquæ ammoniæ	5	or	fl3iss
Spiritus myrciæ	20		fl3vi
Aquæ, ad	100		ad fl℥iv

M. et sig.: Apply to the hands after washing and dry by friction.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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[For other information see second page following reading matter]

SATURDAY, AUGUST 8, 1908.

SPOROTRICHOSIS—A REVIEW.

In 1898 Schenck[1] reported an unusual case of refractory subcutaneous abscesses of the arm, the point of entrance of the infection being a scratch by a nail of the index finger, whence the infection extended along the lymph channels. From the contents of these abscesses Schenck isolated in pure culture a fungus which was regarded as "possibly related to the Sporotricha." The abscesses contained a gelatinous pus and often they were succeeded by ulcers with undermined edges. The illness in this case lasted about six months.

Two years later Hektoen and Perkins[2] observed a similar case with an almost identical clinical course, the abscesses developing after an abrasion of the finger from a blow by a hammer. A number of abscesses and ulcers formed in the subcutaneous tissue of the forearm and there was swelling of the axillary and supraclavicular lymph nodes. The illness lasted three months. Cultures from the gelatinous pus yielded pure growths of the same fungus that Schenck obtained and this was now named *"Sporothrix schenckii."*

Of the cultural and other peculiarities of this fungus, which is a strict aërobe, the following may be mentioned: On solid media such as agar the growth at first is opaque white or grayish-white, extending downward into the medium so that soon a dense coherent mass is formed which may show a snow-white efflorescence. As the cultures grow old they become dark brown or black. In liquid media round tufts or balls develop. Gelatin is liquefied slowly.[3] The fungus consists of a branching septate mycelium from which ovoid bodies develop by budding either from the extremities of lateral or terminal filaments or from the sides of the threads. These characteristics are shown well in the illustrations in the articles cited. Those ovoid bodies are regarded as spores and it is their formation in large numbers that gives the surface of cultures a snowy, efflorescent appearance. Mycelium as well as spores stain well with ordinary dyes and also by Gram's method.

White rats and white mice seem to be the most susceptible animals and in them this fungus causes a slow, circumscribed, nodular inflammation with pus and ovoid fungal bodies (spores[2]) in the center, while at the periphery encapsulating processes go on. This is best seen in the peritoneal cavity. Subcutaneous inoculation in mice causes extensive superficial ulcerations with undermining of the margins. In the two human cases referred to the parasite was not seen in the lesions, being obtained by culture from the pus. Threads do not develop recognizably in the tissues of inoculated animals, only oval, spore-like bodies occurring in the pus in which they undoubtedly multiply as such.

It may be mentioned that Brayton[4] also described an instance of multiple chronic abscesses of the forearm, with gelatinous contents, developing after puncture of the finger by wire, but this case was not studied microbiologically.

Since the publications mentioned nothing more has been heard of this peculiar infection in English literature and no additional cases appear to have been recognized in this country. In Paris, however, a number of cases of various forms of human infection with sporothrix have been described since 1903 when de Beurmann and Ramond[5] reported an instance of multiple subcutaneous abscesses of fungal origin. More recently Lutz and Splendore[6] in San Paulo, Brazil, and Greco[7] have made important contributions to the study of sporotrichosis in man and in animals.

De Beurmann and others[8] describe several instances of sporotrichal abscesses, scattered without any evident elective localization over different parts of the body. The source of infection in these cases is not known and the mode of dissemination is evidently different from that in the American cases. The French authors trace in detail the evolution of the sporotrichal lesion: first there is a small nodular induration in the skin or subcutaneous tissue; gradual, painless softening takes place resulting in from four to six weeks in an abscess with gelatinous contents and without much tendency to enlargement or ulceration if not incised, although spontaneous ulcerations are also described. There is no impairment of the general health. Cultures from the pus give pure growths of the sporothrix. Iodid of potassium exercises definitive curative action whereas mercurials do not. The fungus isolated from the pus in the French cases does not appear to differ in any single essential from *Sporothrix schenckii,* hence it should be so called in accord with the accepted laws of scientific biologic nomenclature. On the other hand a sporothrix isolated by Dor[9] from the pus of a case in which the numerous subcutaneous abscesses were very large seems to have presented quite distinct character-

1. Bull. Johns Hopkins Hospital. 1898, 286.
2. Jour. Exp. Med., 1900, v, 77.
3. For further details see also Foulerton, Trans. Path. Soc. of London, 1901, lii, 259.
4. Indiana Med. Jour., 1899, xviii, 272.
5. Ann. de Dermatologie et Syphiligraphie, 1903, 768. Also Matrechot and Ramond, Compt. rend. de Soc. biol., 1905, lix, 379.
6. Centralbl. f. Bakt., 1 Abt., 1907, xlv, Orig., 632.
7. Argentina Medica, 1907.
8. See summary, by de Beurmann and Gougerot, Ann. de Dermatologie et Syphiligraphie, 1906, 538.
9. Presse Médicale, April 14, 1906, 234.

istics; in this case the infection appeared soon after the lodgment of a needle in the mucous membrane of the pharynx.

Lutz and Splendore[6] record five cases of human sporotrichosis which they have studied completely. These cases all presented the clinical course and the appearances of the cases of Schenck and of Hektoen and Perkins, the infection gaining entrance through the skin of the finger or back of the hand. The sporothrix isolated appears to correspond to the *Sporothrix schenckii*. The South American authors also attribute curative effects to potassium iodid given internally. These authors furthermore have observed the spontaneous occurrence of ulcerative sporotrichosis in rats, the lesions being usually situated on the extremities or the tail. Secondary internal localizations were rarely seen. Having found the fungus on the mucous membrane of the mouth of healthy rats, Lutz and Splendore are inclined to ascribe the cutaneous sporotrichosis of rats to infection from bites.

Among other instances of sporotrichal infection special mention is made of Greco's case[7] in which the foot was involved; of Danlo's and Bland's[10] instance of palpebral localization; and of the localization in the triceps observed by de Massary, Doury and Monier-Vinard.[11]

Additional cases of cutaneous sporotrichosis have been described,[12] thus showing that this form of infection may be much more prevalent than is suggested by surface indications.

We come now to the consideration of the most recently discovered phase of sporotrichal infection, namely, the involvement of mucous membranes. De Beurmann and Gougerot[13] note the saprophytic occurrence of *Sporothrix schenckii* on the bucco-pharyngeal and laryngeal mucous membranes and in a case of cutaneous and subcutaneous sporotrichal abscesses they found the sporothrix in a small ulcer on the soft palate. It has been mentioned that Lutz and Splendore found the sporothrix in the mouth in rats. The case described by Letulle[14] shows well the pathogenic possibilities of this organism: The disease began in January, 1907, as a small nodule on the right forearm and a large number of similar lesions soon cropped out on various parts of the body. Rapid regression took place under treatment with potassium iodid, but in August extensive pharyngeal and laryngeal ulceration had developed which microscopic examination showed to be of sporotrichal nature. At first the ulcers were small, round and grayish with elevated red borders; later the ulceration became continuous, presenting a grayish yellow surface and at one point a small colony of sporothrix actually formed at the same time as typical ovoid bodies were found free in the pus as well as enclosed in polynuclear cells and giant cells. Caseation was not observed. The patient, 66 years old and a vendor of lettuce, died in January, 1908, as the result of a cachexia owing to progressive dysphagia. There was found after death some lobular pneumonia, no internal sporotrichal invasion, but a large ulcer of the larynx, pharynx and oesophagus. Sporothrix is said to have been found on the leaves of lettuce.

In conclusion it may be pointed out that from the foregoing it is quite evident that from now on sporotrichal processes must be reckoned with in the diagnosis and treatment of chronic nodular infections, especially of the skin and subcutaneous tissue. That certain mucous membranes become involved is shown by Letulle's noteworthy case. Heretofore sporotrichosis, no doubt, has been confounded with syphilis or tuberculosis or other diseases—more probably the former because of the curative effect on both of potassium iodid. The clinical resemblance of cutaneous sporotrichosis to glanders also is noted by Lutz and Splendore. It is also clearly evident that whenever possible microbiologic methods of diagnosis must be used in order that the exact nature of the process may be determined. The more that this is done the sooner will the exact nosology and distribution of sporotrichosis become known.

10. Bull. Soc. méd. des Hôpitaux, 1907, p. 1450.
11. Ibid., 1907, p. 1526.
12. Bull. Soc. méd. des Hôpitaux, 1907; Dominici and Rubens-Duval, p. 1055; Laubry and Esmein, p. 386; Rubens-Duval and Fage, p. 380; Lesné and Monier-Vinard, p. 268; Monier-Vinard, p. 353; de Beurmann and Gougerot, pp. 596 and 950.
13. Ibid., 1907, p. 1069 and 585.
14. Presse médicale, 1908, xvi, 177; also Letulle and Debré, Bull. Soc. méd. des Hôpitaux, March 19, 1908, 379.

OLYMPIADS, ANCIENT AND MODERN.

Accounts of the recent athletic contests in London have been inspiriting reading. The results have been complimentary to the brawn and physical endurance of our representatives, who, on the whole, excelled those of many other nations, particularly those of the United Kingdom. Surely no one now need consider seriously the animadversion that the virility of the American youth is declining. The contests were attended by many interesting and dramatic incidents. Probably never in the history of athletic events has anything been witnessed comparable with the spectacle at the finish of the "Marathon" race. For several minutes before the appearance of the first runner there was a tense hush among the 80,000 people who were in the immense stadium at Shepherd's Bush, where all the contests had been held. The course, of about twenty-six miles, was laid from Windsor, where the Princess of Wales started eighty-six runners, through a beautifully diversified country. Presently there appeared Donaldo, an Italian, whose spirit was far stronger than his body. A pitiful wreck, with drawn face and tottering legs, barely able to support himself, he was closely followed by friends in order that they might prevent his falling. When more than a hundred yards from the finish he dropped in a heap, was lifted up and started anew, only to collapse once more when some forty feet from the tape. Being

again helped to his feet, he stumbled, reeling then from side to side like a drunken man, collapsing again and again, and his unconscious body was finally carried across the line. During these pathetic struggles there came Hayes, an American, who rapidly traversed the two-thirds of the stadium track necessary to be completed. The latter was adjudged the winner, Donaldo having been disqualified by reason that he had been carried across the line. Among the sixteen contestants who finished immediately after Hayes, four were his compatriots. It is only fair to say that among those of our representatives in these games the only strictly American name was that of Tewanina, the Indian runner; the list of the rest gives a deliciously Hibernian flavor. We seem, nevertheless, entitled to conclude that the cult of the physical has suffered no decline among our people in our day.

Witness again that superb demonstration recently given by the youths of the Young Men's Christian Association, who, in relays, by night as well as day, over rough roads, through civic thoroughfares, and by swimming across lakes, carried a mayor's message from New York City to Chicago. Nor need we dilate on the physical achievements of our college men, except to note that Dr. Dudley A. Sargent,[1] the director of the Hemenway gymnasium, has found a marked improvement in the physique of both college athletes and students during the past quarter century. The average weight and height of the Harvard student of 1880 were about the same as that of the American youths from 21 to 26 years of age who entered the Federal Army in 1861. The present day undergraduate is an inch taller, from four to eight pounds heavier, while his strength has shown a gain of 30 per cent. In 1880 only 50 per cent. of the Harvard students would have surpassed the height and weight of the army average, while to-day 65 per cent. are superior to that standard. This "is a most remarkable uplift in growth and development for any considerable body of men in any country or community to have attained in twenty-five years."

The original Olympiads seem to us moderns to have been quite characteristic of the spirit and genius of the ancient Greek people. Such, however, was not altogether the case. "The foremost minds of Greece censured and condemned that for which commonwealths established statues, often free dinners for life in town halls, or even breached their walls that the conquering hero might enter amid civic acclamations." Hippocrates and Galen inveighed against the Olympiads, at least with regard to their purely physical aspects. The former spoke of the "athletic diathesis" as being something achieved or come by, and not something of the natural order; he was suspicious of this diathesis, which he differentiated from "the faculty of health." He was, however, a great upholder of gymnastics, the general even training of all the faculties. *Mens sana in corpore sano* was his ideal, though the phrase was Juvenal's. Galen considered the athletic forms of training which develop experts to be excessive, as leading up to some kind of technical power. Aristotle held that the state or habit of athletes was useful neither for the welfare of commonwealths, nor for the health of the individual; their labors were bound up with forced strain and violence; he wondered why they had no good complexions; they were particularly susceptible to colds; they were liable to pass away quickly. And thus Euripides, that keenest of critics: "While evils numberless prevail in Greece, none is worse than the tribe of athletes, who first do not learn well to live, nor could they; for how could one who is a slave to mastication [was there Fletcherism in those days?] and subject to his stomach's needs, acquire a prosperity greater than his sire's, nor, on the other hand, are they enabled to toil in poverty and keep their oar with fortune's flying stroke; or, untrained in good habits as they are, 'tis cruelly hard for them to shift to desperate vicissitude. . . . For who that wrestled well, what nimble-footed man, or who that raised the discus, or thumped some jaw with skill, did aught avail his ancestral commonwealth after he received the wreath?"

The situation was not so incongruous as might seem. No doubt Hippocrates and Galen represented fairly well the medical opinion of their eras—which is not essentially changed to-day. While appreciating to the full the picturesqueness of athletic sports and the noble and most wholesome enthusiasm which they inspire, nevertheless, many physicians now deprecate over-training and over-exercise, such as seems almost essential to the winning of great races. To-day, as in the time of the first Olympiads, many athletes much too soon develop tachycardia, hypertrophied and even permanently dilated hearts; they become pale-faced, tire easily, suffer from dyspnea, develop kidney lesions, and are less resistant than the ordinary citizen, who is not excessive in his exercise. The gist of the matter, here as in all things else, lies in moderation. Especially should the "Marathon" race now be given up. The first course was run by a most heroic soldier to announce the great victory; when he had done this he dropped dead. It is a cruel race, which to-day has not the like splendid motive. The immortalization of the Marathon run may safely be left to poets, who, knowing nothing whatever about athletics, may thus nevertheless play their honorable part.

1. Harvard Graduates' Magazine, June, 1908.

THE ARMY MEDICAL RESERVE CORPS.

After a struggle of four years on the part of the Surgeon General of the Army, backed by the medical profession, Congress at its last session was induced to give much needed relief to the Army Medical Corps, by an Act, approved last April, entitled "A bill to increase the efficiency of the Medical Department of the Army." Conditions in the Army prior to this were deplorable,

so far as the organization of the Medical Department was concerned, as apparently no thought had been given to requirements for war. In fact, officers were far too few to perform the ordinary duties of peace times. Such a condition is quite contrary to that prevailing in the army of every civilized country, except our own, of maintaining during peace a personnel greatly in excess of its actual needs, but so constituted as to be capable of ready expansion in war time, without entailing the occurrence of horrors such as those that attended the Spanish-American War. These were inevitable under the then existing conditions, because they were due not to professional, but to military lack of training. From the insurance viewpoint then, this must be regarded as good policy.

Another deficiency was that the prospects of promotion with adequate compensation were so poor that it had become impossible even to maintain the Medical Department at the meager strength allowed by law, and year by year fewer and fewer candidates could be induced to take the entrance examination. The deficiency in the number of medical officers—who hold an honorable position, as they, like other officers, have a commission signed by the President—was made up by the employment of surgeons under contract, whose status was anomalous, as they were in the Army and not of it—holding no commission which would confer on them the rights and privileges due to all members of an honorable profession.

The new law corrects all these bad features wholly or in part. The number of medical officers is notably increased, so that while our Army Medical Corps is not yet nearly so large, relatively to the size of the Army, as that considered necessary by other nations, it is of so respectable a size that there is now no occasion to blush for our apparent callousness toward our soldiers as compared with the care shown by other countries.

The candidate for the Medical Corps has not at present, it is true, any prospect of the great rewards that come to the leaders of the medical profession in civil life, but he can at least expect promotion and pay which are above the average for the civilian practitioner.

The contract surgeon system has been done away with forever, it is hoped, as all contract surgeons in the service at the time of the passage of the act cited, if so recommended by the Surgeon General of the Army, have been commissioned as first lieutenants in the newly created Medical Reserve Corps.

One other very important result has been effected by the struggle to obtain adequate recognition from Congress. Before this was started the profession in general took little interest in Army matters. The accomplishments of certain individual medical officers, such as Reed, Carroll and Gorgas, were, of course, well known; but physicians generally hardly realized that they were represented in the Army by members of the profession whose achievements, both from patriotic motives and for the honor of medicine, concerned them. It is probable, too, that their obligations in this direction were appreciated the more on account of the recent achievements of the Japanese army, which have demonstrated to the world, that, with the proper organization, numbers, and education of the medical corps, there is no reason why any army should be decimated by disease, or that sick and wounded soldiers should not, at all times, have the care and attention to which they are justly entitled.

The surgeon general has also wisely taken advantage of the feeling thus created, still further to advance the medical service of the army. In order to do this he has lately got in touch with many of the most prominent physicians, surgeons, hygienists and laboratory workers in the country with a view to inducing them to join the new Medical Reserve Corps. We are informed that nearly one hundred favorable responses to the invitation to join this corps have been received from such men. In peace, such officers will not be called on for active duty, so they need fear no interference with the invaluable work which they are performing in their various communities. Their names, however, will lend dignity to the Medical Reserve Corps and give it a standing which could not be otherwise acquired. In war, active service can be required of only those officers of the Medical Reserve Corps who are willing to serve. The need, individual circumstances and home duties would all necessarily be factors in determining the action taken by each. On the other hand, while officers of the Reserve Corps can be commissioned only as first lieutenants under the law, men of the high type indicated holding commissions therein or accepting active service in war would naturally be advanced to the highest volunteer rank available.

THE ILLINOIS PSYCHOPATHIC INSTITUTE.

In the *Bulletin of the Illinois State Board of Charities* for July, the work of the Psychopathic Institute, for which preparations have been in progress for some months, is outlined. In fact it may be said to have been already in operation for some time to a limited extent at Kankakee, but the intention now is to carry its operations into all the institutions for the insane, and to make it the central school of instruction in scientific methods in psychiatry of the state. That there has been a need of some such stimulus for better methods and work has been evident for years, and it is to the credit of the present state administration that it has been thus provided for.

This is not a new experiment as the plan adopted is evidently modeled on that of the New York State Pathological Institute, the value of the work of which is amply attested in the latest report of the State Commissioners in Lunacy of that state, who consider it one

of their most valuable adjuncts in the steady uplift of the medical work of the state hospital for the insane. That such will be the verdict in Illinois, if such an institution can be conducted along similar lines as in New York, is a foregone conclusion. Of course much will depend on the individual in charge of the institution, and Illinoisans may reasonably regret that their state so early lost the services of the man who has so successfully developed the work in New York. It has, however, the advantage of the successful experience in that state as a guide, and it may not be too much to expect that it will keep at least fully abreast with its institution. The head of a pathologic institute of this kind must be more than a skilful and scientific pathologist; he must be a clinician and a psychologist as well, and above all he must have the faculty of arousing and maintaining the scientific spirit and enthusiasm of those whose work he is to direct. If he is to be subordinate to the head of one of the state hospitals, considerable responsibility will rest on his immediate superior, on whose cooperation and good judgment the best success of the work will largely depend. As is recognized in New York State, it is the assistants on the medical staff who will have to receive the instruction and be mainly depended on for the actual personal observation and study. It should therefore increase to some extent their labors, but should also increase the consideration they receive, and they should be duly encouraged to do research work, with the assurance of obtaining proper credit for it, so that hospital positions may be made more desirable than has been the case heretofore. Provision should be made for interneships from which the medical staff can be recruited and which, in any case, will be looked on as worth the seeking of the young graduate in medicine. In the large insane hospitals of the present day there are many opportunities for practical work in general medicine and surgery as well as in the special department for which the institution is designed, and interneships ought to be attractive for first-class men.

If the results of such an institution as the new psychopathic institute were only to save a small percentage of the victims of insanity from becoming chronic charges on their friends or the public or to restore to sanity and usefulness a minute proportion of the cases now considered hopeless—and they should be very much more than this—the wisdom of its establishment ought to be manifest to the most economical objectors. It is in other ways one of the most important steps that have been taken to bring the Illinois hospitals for the insane in accord with modern ideas of what they ought to be.

THE TRANSMISSION OF PRESSURE FROM THE BLADDER TO THE KIDNEY.

There is a widely prevalent notion that overdistention of the bladder results in "a damming back of the urine" through the distended ureters on to the kidneys, with consequent congestion and damage to those organs. From an interesting series of experiments on the ureters of the dog, D. R. Lucas[1] concludes that this does not occur. He has found that in the dog not only are the normal uretero-vesicular valves quite competent to prevent regurgitation, but the ureters are "capable of forcing urine into the bladder even when sufficient pressure is gradually exerted in the bladder to burst it, no rise of pressure taking place in the ureter either from regurgitation or accumulation of urine secreted by the kidney." It is probable, therefore, that whatever effect is exerted on the kidney by retention and distention of the bladder is reflex in origin.

THE BLIGHT ON MEDICAL JOURNALISM.

That conditions in this country in the matter of medical literature and medical journalism are not unique is shown in a paper presented to the recent Congress for Internal Medicine at Vienna, by the president, F. v. Müller,[2] of Munich. All the evils of which we complain exist there also (although as this country contains the major part of the medical journals of the world, the extent of such evils, if not the diversity, is magnified here), viz., overproduction of articles that contain nothing new; the bolstering up of indifferent journals with the names of well-known men who, however, take no active part in the production of the journals and disclaim all responsibility for them; multiple publication of an article or publication in different journals of articles that are mere *réchauffés* of the same matter; premature communications; innumerable case reports, and interminable bibliographies. But the worst of all are the journals conducted for various side issues, which publish lying statements as to circulation and "write-ups" of commercial products. Müller's appeal to the "forces above material interests" to persuade writers to write only when they really have something to say, and publishers to publish only to supply a public want, will, we fear, fall on deaf ears. There is only one way to bring about the desired reform, and that is for the profession to show unequivocally what it wants. When the profession is educated up to a comprehension of that fact and acts on it, there will be no need to call on the "forces above material interests" for the suppression of the evil.

EUPHEMISMS—MEDICAL AND OTHERWISE.

A study of the psychology of language would bring out many interesting points with reference to the effect of the spoken word on our attitude toward the thing spoken of. There is a large class, especially among those in a transitional stage of civilization, which is opposed to calling a spade a spade. Among such people it is considered improper to refer to a lower extremity as a leg; polite society requires "limb" as a substitute. On the farm the boar becomes a "male hog," and it is said that by some of these language-prudes the poor inoffensive bull is referred to as a "gentleman cow!" Such

1. Am. Jour. Physiol., xxii, No. 2.
2. Abstract of Müller's paper appears in Miscellany Department, page 513.

attempts at verbal smoothness and mock delicacy have rightly been the subject of sarcastic comment and have been held to indicate an adolescent stage in civilization —a half-way house, as it were, between the coarseness of the frontier and the culture of the metropolis. Our British cousins, in particular, have not been slow to deprecate the western aversion to calling a thing by its right name. One is surprised, therefore, to see in a recent number of a British medical publication[1] an apology for the medical euphemism. The present tendency on both sides of the Atlantic to discuss questions of a medicosocial nature has, according to our contemporary, made it necessary to adopt a new vocabulary, "in order to avoid shocking the feelings of ladies bent on reform, who, while willing, nay anxious, to discuss the social questions, still squirm at the descriptive term." By way of example the quasimedical terms, "avariosis" and "neisserosis," have been proposed to designate, respectively, syphilis and gonorrhea. The former term, "avariosis," has its etymology in Brieux's play, *"Les Avariés"*—"The Damaged Ones"—which deals with the sociologic importance of syphilis. These terms, we are told, "bid fair to become acclimatized." That the British, of all people, should even suggest the abandonment of that frankness—we had almost said brutal directness—of speech of which they are so justly proud, gives color to the pessimistic charges of British national deterioration. What is to be gained by the euphemism it is hard to say. As the prurient user of the term "limb" develops an altogether artificial and unnecessary sense of indelicacy toward the object spoken of, so it is a question whether substituting "neisserosis" for gonorrhea will not tend more to accentuate the method by which the disease is acquired than its importance as a sociologic evil. We suggest that "ladies bent on reform" whose feelings are shocked by the use of a dignified scientific term are inherently unfitted for the difficult and delicate task of attacking a world-old problem which has thus far defied solution.

1. Med. Press and Circular, June 3, 1908.

Medical News

CALIFORNIA.

Epidemic at State Hospital.—An epidemic of diphtheria is reported from the Southern California State Hospital, Patton, where 40 cases are now isolated. The source of the epidemic has not yet been traced. All the patients are doing well and no deaths have occurred.

Commencement.—The College of Physicians and Surgeons, Los Angeles, held its annual commencement exercises June 26. Diplomas were conferred on a class of 10 by Dr. Charles W. Bryson, dean of the faculty, and the doctorate address was delivered by Dr. James P. Booth.

Hospital Notes.—The new German Hospital, San Francisco, was dedicated June 27, with formal ceremonies. The new structure consists of two six-story brick buildings, which have been erected at a cost of about $700,000. The hospital was opened to receive patients July 9, and under the direction of the new superintendent, Dr. Hoffman, and resident physician, Dr. Walter G. Harder, the patients were transferred to their new quarters without difficulty or inconvenience.——Plans have been completed for the new City and County Hospital, San Francisco, which is to cost $250,000. It is to be a three-story fireproof structure with a main building and two wings.

Personal.—Dr. Stewart M. Dougherty, Napa, has been appointed second assistant physician at the Napa State Hospital, vice Dr. Tyre H. Stice, and Dr. Louis A. Frary has been appointed third assistant physician, vice Dr. S. M. Dougherty, promoted.——Dr. Peter C. Remondino, San Diego, has been made professor of the history of medicine and medical bibliography in the College of Physicians and Surgeons, Los Angeles.——Drs. Charles A. Dukes and Oliver D. Hamlin have been appointed members of the Oakland board of health.——Dr. E. Scott Blair, San Bernardino, has succeeded Dr. A. P. Williamson, resigned, as superintendent of the Southern State Hospital, Patton.——Dr. Horace G. Cates, division surgeon for the Southern Pacific, with headquarters at Los Angeles, for the last 17 years, retired August 1, and has been succeeded by Dr. Edward T. Dillon.—Dr. and Mrs. Washington Dodges, San Francisco, have gone to Europe.

COLORADO.

Care of Feeble-Minded Children.—The State Board of Charities and Corrections is arranging to canvass the state in order to obtain material on which to base a petition to be presented to the next legislature asking for a state institution for the care of feeble-minded children. The necessary information is peculiarly difficult to get.

New Hospitals.—Miss Ida L. Gregory of Denver has given fifteen acres of ground with eighteen cottages, six miles above Morrison, for a sanatorium for tuberculous children. The institution will be formally opened July 20.——A new city hospital with 25 beds has just beeen opened at La Junta. The hospital cost $20,000, more than half of which was donated by citizens of Otero County.

Addition to State Hospital for the Insane.—The new wing of the women's department at the State Hospital for the Insane at Pueblo is now complete and 50 patients will be removed from the Arapahoe County Hospital, Denver, to Pueblo. Fifty more will be taken there from other counties and about 50 insane women will still be without suitable care until the state shall provide another hospital.

Woman's State Medical Society Organized.—The women physicians of Colorado have organized a Woman's Colorado State Medical Society. All women physicians in good standing in their county medical societies are eligible to membership. The objects of this society are to bring the medical women of Colorado into communication with each other for their mutual advantage and the protection of their interests, to encourage social and harmonious relations within the profession, and to promote all measures adapted to the relief of suffering, the promotion of health and protection of life.

DISTRICT OF COLUMBIA.

To Suppress Noise.—The superintendent of police has detailed a special squad of policemen for the suppression of unnecessary noises between midnight and 8 a. m.

Health Report.—According to the weekly health and mortality record for the week ended July 25 there were 128 deaths, of which 69 were white and 59 colored. Of the births, 87 were white and 39 colored. There were 123 cases of typhoid fever under treatment, an increase of 21 over the number on hand at the close of the previous week.

Fellowship Vacant.—A research fellowship in the department of medicine of the George Washington University, carrying with it an annual stipend of $300 is vacant. This fellowship is open to research in any of the medical sciences. Applicants should address Dean W. F. R. Phillips, department of medicine, 1325 H St., N.-W., Washington, D. C.

Pure Food Inspection.—The vigorous crusade against the insanitary preparation of food inaugurated by the health office last month has resulted in an epidemic of cleanliness among those yet to be investigated. Several proprietors of lunch rooms have been convicted in the police court of violations of the law and about a dozen are to close their doors.

Banquet to General Sternberg.—A banquet in honor of the seventieth birthday anniversary of Gen. George M. Sternberg was given June 8, when nearly 200 men celebrated in the annals of government, science and literature met to honor the former surgeon-general. Hon. John W. Foster, former secretary of state, presided as toastmaster. A silver loving cup was presented to General Sternberg by those who attended the banquet, and a large American flag was given him by the attachés and patients of the Sternberg Sanitarium in Maryland.

ILLINOIS.

Personal.—Dr. John W. Dreyer, Aurora, has been appointed head physician for Illinois by the Modern Woodmen, vice Dr. James A. Rutledge, Elgin, elected national director.——After

a long illness Dr. Lewis A. McFadden, Peoria, has recovered and resumed practice.——Champaign County Medical Society has sent in a petition to the board of trustees of the University of Illinois, expressing regret at the resignation of Dr. George T. Kemp, formerly professor of physiology in the university, and asking that the board will endeavor to secure his return.——Dr. Edward L. Kerns, Rock Island, has been reappointed medical director of the Modern Woodmen of America, and Dr. Joseph C. Dodds, Champaign, has been appointed head physician of the order for Illinois.

Psychopathic Institute Installed.—With the completion of the quarters to be occupied by the State Psychopathic Institute at the Illinois Eastern Hospital for the Insane, Hospital, an important step has been taken in the matter of the care and treatment of the insane of the state. Dr. H. Douglas Singer is director of the institute and the scope of the work will be broadened so as to form systematic instruction along the most modern lines of all assistant physicians of insane hospitals in the state. One or two assistant physicians at a time will be sent from each of the eight state institutions, to the institute to receive from three to five days' preliminary instruction under Dr. Singer, which will consist in the introduction of the new system of examination and record keeping. After this instruction has been given Dr. Singer will visit each institution and spend about a week at each; will personally inspect the work that is being done, and make suggestions toward securing uniformity. Following this, a regular course of from four to six weeks, including laboratory work, will be given at the institute. In the equipment of the institute laboratory special attention has been devoted to research and pathologic work and clinical investigation.

Chicago.

Deaths of the Week.—During the week ended August 1, 610 deaths occurred, or 97 more than for the preceding week, and 107 more than for the corresponding week of 1907, the respective annual death rates per 1,000 being 14.68, 12.35 and 12.44. Acute intestinal diseases led the death causes with 173; next came consumption with 57, and violence (including suicide), with 43.

Deaths of Infants.—During July 669 babies under one year of age died in Chicago. Probably two-thirds of these deaths could have been avoided, and most of them may be attributed to ignorance and neglect of the parents. The department of health is now directing the work of 75 physicians in the crowed districts of the city, in the line of education of mothers in the proper care of their children. The most common abuse is reported to be overfeeding and the feeding of improper food.

Mandamus Proceedings Not Pressed.—Mandamus proceedings in an effort to compel the Illinois State Board of Health to recognize his diploma were begun recently by Joseph William Zeh, a graduate in 1908 of the National Medical University, a medical night school of Chicago. Last fall this school was declared not in good standing by the Illinois board. The case was to have been tried in the Superior Court of Cook County, Monday, August 3, and the board was ready, but no one representing the plaintiff appeared.

Arrested for Selling Bogus Diplomas.—Dr. William G. French, a graduate of Hahnemann Medical College of Chicago in 1906, was arrested by the Illinois State Board of Health August 1, on the charge of selling a bogus diploma for $75 to Stanislaus M. Kolar, a drug clerk. The diploma bore the name of the Andrew Carnegie University and was signed by "William Gayle French, A.M., M.D., president of the board of trustees; Frederic C. Hanmore, Ph.G., secretary of the faculty, and W. M. Marquardt, B.S., registrar." An institution by the same name was chartered in Illinois July 31, 1908, but by different persons than those whose names appeared on the diploma.

Summer School of Insanity.—Sixty students have been enrolled in the summer classes of the Chicago School of Civics and Philanthropy under the auspices of the Chicago Commons. Of this number 24 are attendants in various hospitals for the insane and are studying particularly the methods of rehabilitating the minds of their patients. There are 36 in the course of "social agencies of modern cities." In this class the students are learning to become probation or truant officers, reformatory aid society or settlement workers. The course, which is in charge of Edward Worst of the Chicago Normal School, gives instruction in the methods of educating the insane and in varieties of recreation and games adapted to the use of such persons.

INDIANA.

Personal.—W. G. Moenkhaus, Ph.D., has been made professor of physiology; Dr. A. G. Pohlman, professor of anatomy, and Dr. W. R. Alburger, professor of pathology in the Indiana University.

Hospital Notes.—The new surgical department of the Protestant Deaconess Hospital, Indianapolis, was opened June 26. ——The tuberculosis hospital commission on July 14 secured a site at Rockville for the Tuberculosis Hospital, at a cost of $24,792.50.——A free tuberculosis clinic has been opened at the Indianapolis City Dispensary, with Dr. Frank L. Truitt in charge. In addition a trained nurse is retained, who will inspect all homes of the patients, instructing patients and their families in the hygiene of their homes and the care of their health.——The Anti-Tuberculosis Society, Evansville, has decided to found a farm colony near that city.——The Sisters of Charity, Indianapolis, have purchased the Victor residence at Missouri and Fifteenth streets, for a hospital.

IOWA.

Medical Society Meetings.—At the twentieth annual June meeting of the Dubuque County Medical Society, held June 23, the president, Dr. James Anderson, delivered the address of welcome; Dr. Robert B. Preble, Chicago, read a paper on "Indications for and Therapeutic Value of Phlebotomy," which was discussed by Drs. Isaac S. Bigelow, James R. Guthrie, Alanson M. Pond and John S. Lewis, all of Dubuque; Dr. E. Wyllys Andrews, Chicago, gave a lantern-slide demonstration of "Practical Points in the Radical Cure of Inguinal Hernia"; Dr. John C. Hancock, Dubuque, presented a paper on "Subdeltoid Bursitis"; Dr. Oliver S. Ormsby, Chicago, a paper on "Some Common Errors in Diagnosis in Cutaneous Disease"; Dr. William A. Pusey, Chicago, demonstrated a new method of treating nevi and other skin lesions by solidified carbon dioxid, and Dr. John S. Lewis, Dubuque, read an article on "House-cleaning, Debt-paying." After the afternoon session, there was a demonstration of pathologic specimens, and in the evening a dinner was given at the Dubuque Club, at which Dr. James R. Guthrie presided as toastmaster.

KENTUCKY.

Details of Merger.—The final details of the merger of the medical colleges of Louisville have been worked out by the committee, composed of Drs. James M. Bodine, chairman, Clint W. Kelly, William H. Wathen, Thomas C. Evans, Lewis S. McMurtry, Joseph B. Marvin, H. Horace Grant, Martin F. Coomes, Henry B. Ritter, and Richard B. Gilbert. By the terms of agreement the property of the Louisville and Hospital Medical College, located at First and Chestnut Streets, and the Kentucky School of Medicine, on Sixth Street, between Chestnut and Walnut, is acquired. The City Council will be asked by the trustees of the university to appropriate $30,000 for the equipment of the laboratories of the medical department. The following officers were elected: Dr. James M. Bodine, president; Dr. Joseph B. Marvin, vice-president; Dr. Thomas C. Evans, dean, and Dr. Philip F. Barbour, secretary. The executive committee is composed of Drs. William H. Wathen, Clint W. Kelly, Lewis S. McMurtry, H. Horace Grant, and the president and dean, ex officio. The auditing committee is composed of Drs. Henry E. Tuley, Martin F. Coomes, Henry B. Ritter; purveyor, Dr. Hugh N. Leavell. Committee to take inventory of the laboratory of the three schools: Drs. Joseph B. Marvin, Ellis S. Allen, Bernard J. O'Connor and Harry A. Davidson. The following major faculty was elected by the commission: Drs. William Bailey, Joseph M. Bodine, Thomas C. Evans, William E. Grant, Henry A. Cottell, Leon L. Solomon, Virgil E. Simpson, Henry M. Goodman, Edward Palmer, Joseph B. Marvin, John G. Cecil, Richard B. Gilbert, Samuel E. Woody, William O. Roberts, Thomas L. Butler, J. Garland Sherrill, Argus D. Willmoth, Turner Anderson, Louis Frank, William B. Doherty, Henry E. Tuley, J. Morrison Ray, Adolph O. Pfingst, Isadore N. Bloom, Charles W. Hibbitt, Bernard Asman, Isaac Lederman, Carl Weidner, Lewis S. McMurtry, Frank C. Wilson, Samuel G. Dabney, John Edwin Hays, H. Horace Grant, Philip F. Barbour, Edward Speidel, George A. Hendon, Walter F. Boggess, Ezra O. Witherspoon, Harry A. Davidson, William H. Wathen, Martin F. Coomes, Henry Orendorf, Fouche W. Samuel, William A. Jenkins, John R. Wathen, George B. Jenkins, Arthur J. Boyd, Oscar C Dilly, Ellis S. Allen, Curran Pope, Granville S. Hanes, Gaylord C. Hall, Clint W. Kelly, Irvin Abell, Benjamin F. Zimmerman, Hugh N. Leavell, Sidney J. Meyers, Bernard J. O'Connor, Ellis Duncan and William C. Dugan

LOUISIANA.

Provision for Tuberculosis Clinic.—At a meeting of the Louisiana Anti-tuberculosis League July 9, a resolution was unanimously adopted providing for $2,500 to establish a tuberculosis clinic in a central location in New Orleans. This amount should be considered as providing for the maintenance of the clinic for one year.

No New Medical College.—It is announced by the party advocating a medical department for the Louisiana State University that the plans for a medical college in connection with the university have been abandoned on account of the financial depression and the failure to obtain an appropriation from the state legislature.

Milk Supply and Flies.—In the annual report to the State Board of Health, made by Dr. Frederic J. Mayer, New Orleans, medical inspector, he recommends two state institutes of hygiene to be held in the near future, one to consider "Milk in Its Relation to Health," and the other to discuss "The Fly as a Transmitter of Disease."

New Orleans Health Report.—The State Board of Health, in its biennial report, includes an exhaustive statement of the health condition of the city in the last quarter of a century. From the year 1880 to 1907, 25,394 deaths are said to have occurred from tuberculosis and 14,634 deaths from heart disease. The building of an isolation hospital for smallpox patients is urged by the health officer, and he suggests that measles be made a reportable disease.

Charges Against Physicians.—Drs. Maxime Landry and Lambert E. Poree, New Orleans, are said to have been charged with violation of the law by failing to report cases of tuberculosis, and Dr. Ernest A. Rappanier of the same city has been charged with failure to report a case of scarlet fever. Dr. Poree is said to have been fined $25 each, on two charges, and Dr. Rappanier to have been fined a similar amount. Both physicians gave notice of appeal.

MARYLAND.

Personal.—Dr. Peter W. Hawkins, La Plata, is said to be seriously ill.——The attorney general has decided that Dr. Guy Steele, Cambridge, is entitled to be considered the health officer of Dorchester County.

State Exhibit at Tuberculosis Congress.—Representatives of twenty or more Maryland institutions and organizations interested in the fight against tuberculosis, are making arrangements for a state exhibit at the National Congress on Tuberculosis.

Water Supply and Sanitary Condition.—A meeting was held in Cumberland July 15, to discuss the water supply and sanitary condition of the city. Dr. Marshall S. Price, secretary of the State Board of Health, in the course of an illustrated talk on public and private water supplies, advised against the use of the Potomac River as a source of water supply on account of its pollution, and stated that for many years this, with the exception of a few artesian wells, has been the only source of water supply for the city. The physicians of Cumberland have prepared an ordinance providing for the creation of a board of health.

Baltimore.

Typhoid Fever Increasing.—Typhoid fever is reported to be on the increase. During the week ended July 25, 55 cases were reported, with 5 deaths.

New College Building.—The Baltimore Medical College will erect a library building on North Howard Street, four stories in height, to cost about $60,000.

Sanatorium Opened.—The Jewish Sanatorium for Consumptives was opened July 20, with 15 patients. It is under the care of Dr. Max Smirnaw. Two cottages are nearly completed, which will accommodate 12 persons, so that by fall the institution will be able to provide for 50 patients.

Isolation Hospital.—The Sydenham Hospital for Infectious Diseases at Bay View is almost completed. The building is to be one story high and has capacious porches. At the south end there are two wards, one for men and one for women, while at the north end there are similar arrangements for colored patients. Each ward will accommodate eight patients.

Medical Library Building.—Estimates are being secured for the erection of the new library building for the Medical and Chirurgical Faculty of Maryland, for which a site was recently purchased on Cathedral Street. The building will have a breadth of 60.8 feet and depth of 128 feet. On the first floor there will be an assembly hall seating 500, a smaller hall seating 150, social and smoking, committee and section rooms. The second floor is devoted entirely to the library, which will have a capacity of 68,000 volumes; and the third floor is to be given over to section rooms, committee rooms and laboratory.

Personal.—Dr. Adolph Meyer, recently elected director of psychiatric clinic in Johns Hopkins University (the Henry Phipps endowment), will shortly sail for Europe with the architect, to inspect foreign psychiatric clinics.——Dr. James H. Bay of the staff of the University Hospital was recently operated on for appendicitis.——Dr. Leonard M. C. Parker has gone to Europe.——Dr. Arthur M. Shipley has been appointed director of the University Hospital Dispensary.——Dr. Arthur P. Herring has been elected secretary of the state lunacy commission, vice Dr. George J. Preston, deceased. Dr. Hugh H. Young has been elected president of the board, vice Dr. Charles F. Bevan, resigned.

MASSACHUSETTS.

Epidemic in Naval Yard.—On account of the recent epidemic of diphtheria in the hospital of the Charlestown Naval Prison, the prison has been thoroughly fumigated and cleansed and the prisoners quartered in the prison yard. The number of patients has decreased from sixteen to three and these are being cared for in the Naval Hospital, Chelsea.

Personal.—Dr. Charles S. Minot, Stillman professor of anatomy in Harvard University Medical School, has been elected a corresponding member of the Vienna Physico-Medical Society.——Dr. Arthur H. Cutter has been elected a member of the visiting staff of the Lawrence General Hospital.——Dr. Herman Cooper, Amesbury, has been seriously ill.——Dr. John J. Martin has been made president of the Beverly Board of Health.——Dr. George B. Sargent, Lawrence, has succeeded Dr. John G. McAllister, deceased, as United States pension examining surgeon.——Drs. Thomas E. Cavanaugh, Holyoke, and Michael J. Shea, Chicopee Falls, sailed for Europe July 1.——Dr. Percy Reynolds has been placed in charge of the new department of physical education and hygiene at the Massachusetts Agricultural College.

Tuberculosis Notes.—The new Boston Consumptive Hospital was opened July 7 and fifty patients are now under treatment. Dr. Simeon Cox is superintendent of the institution.——The board of health of Cambridge has appointed an advisory board of physicians which will have general charge of the health conditions in the city, and will be ready for prompt action in case of epidemic or other emergencies. The members of the board are Drs. Edmund H. Stevens, Frederic W. Taylor, Thomas E. Cunningham, Walter Wesselhoeft, and Charles H. Thomas.——The Cambridge Tuberculosis Camp was opened informally July 15, and will accommodate about 200 patients. Dr. Felix F. McGirr is resident physician at the camp and Drs. John J. Whoriskey, Fred R. Jouett, J. Arnold Rockwell, and John F. Fair make up the visiting staff.——The board of health of Cambridge has assumed charge of the dispensary of the Cambridge Anti-tuberculosis Association, where the following physicians will receive and diagnose cases: Drs. Wentworth L. Hayes, William H. Burke, Frederic J. Goodridge, and George E. Norton.

MICHIGAN.

Epidemic Diseases.—Diphtheria is reported to be present in Ontonagon County, and five cases have appeared in Houghton.——The smallpox epidemic is still progressing in Vermontville.——Smallpox is reported from Marshall.——Smallpox is reported at Atlantic, Baltic and South Range.——Several new cases of smallpox are reported in Hancock.——On July 14 thirty cases of smallpox were under treatment at the Ontonagon County Isolation Hospital.

Personal.—Dr. George Dock, professor of theory and practice of medicine at the University of Michigan, Department of Medicine and Surgery, Ann Arbor, has resigned and accepted the chair of theory and practice of medicine in the Tulane University of Louisiana, New Orleans.——Dr. John H. Carstens, Detroit, announces his candidacy for the mayoralty of the city on the basis of direct appeal to the people. His candidacy will be free from promises, pledges and politicians.——Dr. Casper K. La Huis, Kalamazoo, is said to be critically ill at his home.——Dr. John C. Salmon, Howard City, has been elected medical director of the Michigan G. A. R.——Dr. Howard A. Grube, Coldwater, has been appointed chief surgeon of the Soldier's Home, Grand Rapids.——Dr. Thomas M. Koon, Grand Rapids, has returned after a year abroad.——Dr. D. Emmett Welsh has succeeded Dr. Perry Schurtz as health officer of Grand Rapids.

MINNESOTA.

Pasteur Institute Report.—The Minnesota Pasteur Institute, Minneapolis, which was established in August last, has treated 161 cases since that time.

Tuberculosis Camp Ready.—Hopewell Park, the new tuberculosis camp established by the city of Minneapolis, is completed and ready to receive patients.

Communicable Diseases.—Diphtheria is reported prevalent at Aurora.——Crookston has twenty-two cases of typhoid fever, and the disease is reported to be epidemic in Mankato, where the Catholic school adjoining St. Joseph's Hospital has been converted into an emergency hospital.

Personal.—Dr. Adolph O. Bjelland has been elected president of the Mankato Anti-Tuberculosis Society.——Dr. Daniel C. Darrow, Moorhead, was thrown from his buggy, July 2, sustaining painful cuts and bruises.——Dr. Archa E. Wilcox, Minneapolis, has been appointed medical member of the board of charities and correction, vice Dr. Charles G. Weston, resigned.

MISSOURI.

Staff Assignments.—At the regular meeting of the board of control of Levering Hospital, Hannibal, the following assignments were made for the medical staff for the year: Dr. James N. Baskett, physician in charge; Dr. Thomas Chowning, attending surgeon; Drs. Charles E. Paxon and Henry L. Banks, consultants; Dr. John J. Bourn, attending physician; Drs. Robert H. Goodier and Archie L. Shanks, consultants; Dr. Richard Schmidt, attending gynecologist; Drs. Elmer E. Waldo and Clifton R. Dudley, St. Louis, consultants; Dr. Edward H. Bounds, attending obstetrician and pediatrician; Drs. I. E. Hill and W. Cloyd Guss, consultants; Dr. W. Cloyd Guss, pathologist; Dr. Ulysses S. Smith, attending oculist and aurist; Drs. Edward T. Hornback and James S. Howell, consultants, and Dr. I. E. Hill, *x*-ray specialist.

NEW HAMPSHIRE.

Communicable Diseases.—Eight cases of diphtheria were reported in Manchester June 22.——Epidemics of mumps and measles are reported in Gilford.

Society Meeting.—At the annual meeting of Belknap County Medical Society, held in Laconia, June 1, Dr. Albert J. LaFrance was elected president; Dr. Edwin P. Hodgon, Lakeport, vice-president; Dr. Alpha H. Harriman, Laconia, secretary, and D. T. Bates Cook, Laconia, treasurer.

Personal.—Dr. Wallis D. Walker, Portsmouth, has been appointed deputy medical referee, vice Dr. William H. Nute, Exeter, resigned.——The medical and surgical staff of St. Joseph's Hospital, Nashua, have elected the following officers: Dean, Dr. Pierre E. Dansereau; president, Dr. A. Wilfred Petit, and secretary, Dr. James T. Greeley.——Dr. Charles E. Congdom, Nashua, has been appointed medical referee of Hillsboro County, vice Dr. James T. Greeley.——Dr. Herbert L. Taylor, city physician of Portsmouth, has resigned.

In the Courts.—The jury in the superior court in the case of Drs. Michael E. Kean and Clarence M. Dodge, Manchester, who sued for claims for medical treatment rendered Miss Laura J. Dunn, is said to have returned a verdict for the plaintiffs. Dr. Kean was awarded $457.80 and Dr. Dodge $116.65.——Dr. William M. Richardson, Londonderry, filed a petition asking for an injunction that Dr. P. W. F. Corning be restrained from interfering with his territory and patients. Dr. Richardson alleges that Dr. Corning agreed to take his practice for six months and then relinquish it, but that he failed to do the latter.

NEW JERSEY.

County Society Meetings.—At the annual meeting of the Warren County Medical Society, held in Belvidere, the following officers were elected: President, Dr. Edward H. Moore, Asbury; vice-president, Dr. Edgar N. Brasefield, Phillipsburg; secretary, Dr. William J. Burd, Belvidere; treasurer, Dr. G. Wyckoff Cummins, Belvidere, and reporter, Dr. John H. Griffith, Phillipsburg.——Sussex County Medical Society, at its recent annual meeting, elected the following officers: President, Dr. Edward W. Jones, Layton; vice-president, Dr. Enos E. B. Beatty, Newton; secretary, Dr. Shepard Voorhees, Newton; treasurer, Dr. Ephraim Morrison, Newton, and censors, Drs. Lewis C. Burd, Ogdensburg, and Joseph G. Coleman, Hamburg.——The following officers were elected at the annual meeting of the Salem County Medical Society: President, Dr. Lester H. Hummel, Salem; vice-president, Dr. John M. Summerill, Penn Grove; secretary-treasurer, Dr. Henry Chavanne, Salem; reporter, Dr. John F. Smith, Salem, and censor, Dr. William H. James, Pennsville.

NEW YORK.

County Tuberculosis Hospital.—The board of supervisors of Rensselaer County, at a meeting held in Troy, July 17, appropriated $25,000 for the erection of a hospital for advanced cases of tuberculosis, to accommodate 65 patients.

To Furnish Antitoxin.—The Health Department of New York City has shipped fifty horses to its sanitarium at Otisville which are to be used as antitoxin subjects. Nineteen horses from the Borough of Brooklyn have been added to this number.

Communicable Diseases.—The churches of the town of Wheatfield are to be closed for two weeks and no public gatherings are to be held for the same period on account of the presence of at least 50 cases of smallpox in Niagara County.——Elmira reports 20 cases of typhoid fever.

New York City.

War on Rabies.—Sixty special policemen have been detailed by the Board of Health for the purpose of destroying stray dogs. All dogs without muzzles or unleashed are to be considered as stray dogs. Whether the dog has a license or not is of no importance. The police are not required to report the number of dogs killed.

Mosquitoes Bred in New York.—The state entomologist of New Jersey resents the imputation that New York imports its mosquitoes from New Jersey. It is stated that the conditions at the mouth of the Bronx River are such as would furnish New York City with mosquitoes, and that it is more than possible that New York City furnishes the Palisade district in New Jersey.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended July 25, 400 cases of tuberculosis, with 173 deaths; 219 cases of measles, with 7 deaths; 175 cases of diphtheria, with 22 deaths; 131 cases of scarlet fever, with 9 deaths; 71 cases of typhoid fever, with 15 deaths; 14 cases of whooping cough, with 7 deaths; 12 cases of cerebrospinal meningitis, with 7 deaths, and 9 cases of varicella—a total of 1,031 cases and 240 deaths.

Advice on the Care of Babies.—A handsome cardboard folder containing instructions to mothers on the care of babies has been prepared by Dr. N. S. Macdonald and is being distributed at the Mothers' Seaside Rest at Coney Island. In a few days the booklet will be issued in Italian, Hebrew and German, and all churches, charity societies, missions, etc., are invited to take a supply for distribution. The subjects of infant feeding, clothing, fresh air, bathing, sleep and how to get aid in case of sickness are treated.

OHIO.

Cincinnati.

Dr. Culbertson's Will.—Under the will of the late Dr. James Coe Culbertson, his wife is given his interest in the *Lancet-Clinic*, his stocks, bonds and personal property. The estate is appraised at $20,000.

Report of Health Officer.—Dr. Mark Brown, health officer, in his annual report states that during 1907 there were 6,414 deaths, a decrease of 781 as compared with the preceding year, equivalent to 16.88 per 1,000. The highest mortality was in March, the lowest in October, and the average monthly mortality was 534. Almost 30 per cent. of the deaths occurred in public institutions. During the year 6,014 births were reported, 373 less than the number of deaths, which is accounted for by the fact that many deaths during the year were not reported to the department of health. Hundreds of school children were sent home on account of contagious diseases, and thousands were recommended for treatment. Defective eyesight was found in 3,184 cases; diseases of the eye in 502; defective hearing in 272; otitis media in 190; hypertrophied tonsils in 1,918; adenoids in 486, and tonsillitis in 459.

PENNSYLVANIA.

Personal.—Dr. Fremont W. Frankhauser, Reading, has recovered after several weeks' confinement, due to an infected eye.——Dr. Janet H. Sherman, assistant physician at the insane hospital at Norristown, has resigned on account of ill health.——Dr. Samuel D. Shull, Chambersburg, has been appointed resident physician at the Frankford Hospital, Philadelphia.

Advisory Board Appointed.—The mayor of Pittsburg has appointed an advisory board to assist the typhoid fever commission recently appointed to investigate the cause of the disease in the city. Dr. James F. Edwards, superintendent of

the bureau of health, is chairman of the committee, and Dr. Eugene G. Matson, city bacteriologist, has the management of the investigation.

Sewage to be Kept from River.—Dr. Samuel G. Dixon, state commissioner of health, has begun his crusade against the pollution of the north branch of the Susquehanna River by ordering Danville to erect a sewage plant and submit the plans to the State Health Department. The plant is to be in operation by July, 1910. For several years Danville has been subject to epidemics of typhoid fever, and the town is scarcely ever without the disease. The source of the infection is said to be the river water, which is known to be polluted by sewage.

Society Meetings.—At the annual meeting of the Lehigh Valley Medical Society, held in Delaware Water Gap, July 9, Dr. Adam L. Kotz was elected president, and Dr. J. Anson Singer, East Stroudsburg, vice-president.——The physicians of Apollo, Vandergrift, Vandergrift Heights and Leechburg have organized a medical society, with Dr. Joseph D. Orr, Leechburg, as president; Dr. Thomas J. Henry, Apollo, vice-president; Dr. Joseph C. Stahlman, Vandergrift, secretary; and Dr. John C. Hunter, Apollo, treasurer.——Carbon County Medical Society has elected the following officers: President, Dr. Allen W. Catterson, Palmerton; vice-president, Dr. J. H. Young; secretary-treasurer, Dr. James B. Tweedle, Weatherly; and censors, Drs. William H. Clewell, Summit Hill, Wilson P. Long, Weatherly, and William W. Reber, Lehighton.

Philadelphia.

Phipps' Institute to Move.—It is asserted that the Henry Phipps Institute for the Prevention and Cure of Tuberculosis will move from this city. This step is taken, it is said, by the prohibitive prices asked for the properties that the institution has tried to procure.

Personal.—Dr. Theodore Le Boutillier has been appointed clinical professor of pediatrics in the Woman's Medical College of Pennsylvania.——Dr. John H. Musser has been made chairman of the American committee for the sixteenth International Medical Congress.——The following physicians have gone to Europe: Drs. Albert P. Francine, Gordon M. Christine, Hermann Heller, Othmar Barthmaier, J. T. Lippincott, Frank O. Nagel, M. S. Lowenstein, G. Hudson Makuen, Harvey E. Schock, E. A. Shumway, Alexis D. Smith and Emil M. Welty.

Publication of Poison Prescriptions.—At a recent meeting of the Philadelphia Association of Retail Druggists the matters of newspapers publishing prescriptions containing cocain, strychnin and digitalis was thoroughly discussed, and it was pointed out that to fill these was against the law, besides being dangerous to the public. On motion the press committee of the association was requested to call on the publishers of the *Record* and the *Evening Telegraph* and call their attention to the facts of the case, with a view of having them discontinue the practice.

GENERAL.

Coming Meeting.—The twenty-first annual meeting of the Medical Society of the Missouri Valley will be held at Council Bluffs, Iowa, under the presidency of Dr. William F. Milroy, Omaha, September 3 and 4. The oration on medicine is to be given by Dr. C. H. Hardin, Kansas City.

Scarlet Fever on Warship.—Several cases of scarlet fever developed on the United States battleship *Nebraska* on her cruise from San Francisco to Honolulu. The patients have been transferred to the hospital ship *Relief*, and the *Nebraska* was isolated while coaling at Honolulu.

Medical Association Meetings.—The twenty-third annual meeting and ladies' night of the White River Medical Association was held in White River Junction May 20. The following officers were elected: Dr. Frederick von Tobel, Lebanon, N. H., president; Dr. Frederick T. Kidder, Woodstock, vice-president; Dr. James A. Leet, Enfield, N. H., secretary-treasurer, and Drs. Isaac N. Fowler, Lebanon, N. H., E. C. Carleton, and D. S. Drake, censors.——The Iowa-Illinois District Medical Association held its annual meeting in Geneseo, Ill., July 16, under the presidency of Dr. George E. Decker, Davenport, Iowa. The following officers were elected: President, Dr. Frank H. First, Rock Island, Ill.; vice-president, Dr. George M. Middleton, Davenport; secretary, Dr. Charles S. Young, Geneseo, and treasurer, Dr. Theodore W. Kemmerer, Davenport, Iowa.

Pure Food and Drugs Congress.—The First International Congress for the Repression of Adulteration of Alimentary and Pharmaceutical Products will be held in Geneva, Sept. 8, 1908. There are already many members from the United States, but it is desirable to have the largest representation possible from this country. The congress is held under the auspices of the White Cross Society and the Swiss government. The fee for membership is $4.00. Dr. H. W. Wiley of Washington, D. C., chairman of the American committee, will forward names of members and their subscriptions and will give further particulars of the congress to those who request it. Reduced rates will be given on steamship lines and on European railroads. Intending members are urged to send in their subscription at once.

CANADA.

The Opium Traffic in Canada.—From the report of Mr. McKenzie King, deputy minister of labor at Ottawa, which he recently issued, the opium traffic in Canada has its chief seat on the Pacific Coast. In three Canadian cities there are at least seven factories whose combined receipts for 1907 were between $600,000 and $650,000. The crude opium is imported in cocoanut shells and is manufactured first into powdered opium and afterward into opium prepared for smoking. Most of the manufactured article is consumed by the Chinese themselves in Canada, but the consumption is increasing among the white people, while some finds its way surreptitiously into the United States. It is likely that the government will soon take the importation and sale of opium into its own hands.

Hospital News.—Dr. J. N. E. Brown, superintendent of the Toronto General Hospital, and Dr. R. W. Bruce Smith, inspector of hospitals in Ontario, have gone to Europe to study the most recent and modern methods of hospital construction and equipment, preparatory to the erection and equipment of the new Toronto General Hospital.——The Toronto Orthopedic Hospital recently held its annual meeting for 1907 and has issued a decennial report for 1898-1908. The institution was founded in the former year; and this is the only hospital in Canada devoted exclusively to the treatment of the lame, ruptured, crippled and deformed. In the 10 years there have been more than 2,500 admissions, with but 11 deaths from all causes during that time. Over 2,000 operations have been performed.

FOREIGN.

French Surgical Congress.—The twenty-first French Surgical Congress convenes this year at Paris, October 5. The questions to be discussed are: "Surgery of the Biliary Passages"; "Surgical Treatment of Cavities of Pathologic Origin," and "Surgical Treatment of Facial Neuralgia."

Sleeping Sickness Pamphlet.—On account of the prevalence of sleeping sickness in equatorial Africa, the French minister of the Colonies has distributed a pamphlet prepared by Dr. A. Kermorgant, inspector general of the colonial sanitary service, setting forth the prophylaxis of the disease. It is printed in French and in the different dialects spoken in the colonies.

Assault on Professor Marie of Paris.—A former patient at the Villejuif insane asylum returned after his discharge and shot the physician-in-chief, the eminent alienist, Prof. A. Marie, last month, one bullet entering the chest and another the thigh, but neither doing much harm. Both bullets were removed at once, and Marie is not considered in danger. He recently assumed the editorship of the *Archives de Neurologie*.

The Annual Meeting of the Leipsic League.—The eighth general meeting of the Association to Promote the Economic Interests of German Physicians was held in June at Danzig. It was announced that the association has successfully arranged 155 cases of conflict between the medical and executive officers of the sickness insurance companies, and 122 are still pending. The long conflict at Cologne is nearing its end, as the company can not obtain medical aid outside the association adequate for its purposes. More medical positions were registered during the year than there were applicants, but 2,532 places were filled by the intermediation of the association. On the other hand, there were far more inquiries for locations for general practice than there were places.

French Practitioners' Congress.—For the second time the rank and file of the profession have assembled to discuss matters concerning medical education and the material interests of practicing physicians. The Second Practitioners' Congress met at Lille, June 25, with 1,500 members in attendance, including delegates representing over 7,500 other physicians—a truly national gathering. The necessity for reform in the present system of medical education in France was the main subject discussed, but much light was thrown on other themes by the various addresses, especially the dispensary and hospital abuse by the well-to-do, medicolegal testimony, etc. The best fruits of these congresses, however, are said to be the growth of the spirit of organization, the welding of the profession into a solid body, the realization of the fact that the needs and aims of one are the needs and aims of all, and that by organizing they can be obtained and realized.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, July 25, 1908.

Open Air Schools.

The London County Council is extending the scheme of open-air education which they introduced about a year ago for the benefit of delicate children. The first open-air school was conducted in Bostall-wood, Plumstead, from July 22 to October 19, last year, as an experiment and proved a marked success. While this school administered to the educational and hygienic requirements of 49 boys and 64 girls for a period of three months, it is now proposed to run for a period of five months three such schools, each capable of accommodating 75 children. The children will be divided into three classes of 25 each. The staff will consist of one head teacher, three assistant teachers, a nurse, a cook, a cook's helper, and a school-keeper. The cost of feeding the children is about 70 cents a head each week. This is paid by the parents when they are able to do so; when they can not, it is paid partially or entirely out of voluntary funds. In last year's experiment, every child was benefited physically and the improvement was greater than could have been anticipated. The children were suffering, in the main, from the debilitating conditions which arise from city life. The commonest ailments were anemia, enlarged cervical glands, adenoids, and hypertrophied tonsils. Children who were admitted suffering from active disease, showed gratifying improvement. Dr. Sears, the medical officer, in his report says: "The general effect of the open-air school life on the children was easily discernible in their improved color and less restrained demeanor. They seemed brighter and more full of spirits at the end of the school day than at their commencement. Their movements were brighter and their intellects were keener as a result of their attendance at the school."

Women Refused Admission to the Royal College of Surgeons.

The result of the poll of the fellows and members regarding the admission of women to examination for the diplomas of membership and fellowship of the Royal College of Surgeons is as follows: A majority of 415 against admission of women to the membership and a majority of 1,182 against their admission to the fellowship. The votes of the fellows taken separately showed a majority of 288 in favor of admitting women to the membership and a majority of 34 in favor of admitting them to the fellowship. The votes of the members taken separately showed a majority of 703 against admitting women to the membership and a majority of 1,216 against admitting them to the fellowship. Of the fellows 1,043 voted out of 1,373 available; 8,543 members out of 13,800 available. The report on this subject will be considered by the council in October. It is noteworthy that the fellows, who are all surgeons of some eminence, should, on the whole, favor the admission of women, while the members, who are almost all general practitioners and the rank and file of the profession, should favor the refusal.

BERLIN LETTER.

(From Our Regular Correspondent.)

BERLIN, July 1, 1908.

The Study of Medicine by Women in Germany.

The study of medicine by women is with us in Germany much more recent and less extensive than with you. While in the United States, according to the information that has reached us, thousands of women physicians are in practice, with us the feminine colleagues are numbered only by hundreds. This, I might say, is fortunate from the standpoint of the German physicians, who, as I have formerly shown, are as a whole engaged in a hard enough struggle for their living. The opposition of physicians to the pursuit of medical studies by women was, therefore, for some years strong, for the reason that a reduction of income was feared from the new competition. But it is an old experience that new ideas, if they are right in principle, in the end prevail in spite of all opposition, and if we wish to be impartial we must accord to medical study by women an essential justification.

It must be admitted that women have a right to an independent economic life, and that those who find no matrimonial home are entitled to choose their own occupation. That this choice of calling should extend to the professions we must admit. It is not of value to attempt to show that women have not accomplished anything important in the fields in which they have hitherto labored. Women, as a rule, take up a profession merely to have a good purpose in life.

After long delay the German government has taken notice of these considerations. After repeated petitions women were finally admitted to the study of medicine in the German universities by a decree of the imperial chancellor in April, 1899. Even to-day they do not possess complete equality with men in all the German states, since some admit women not as really matriculated students, but simply as listeners (Gasthörerinnen). This is especially true of Prussia, but it is to be expected that this barrier will be removed at the next semester.

Of other states one need only mention Mecklenburg-Schwerin, Hesse, Sachsen-Weimar, Alsace-Lorraine as those in which women hitherto have been permitted to study only as listeners. In these states it is placed at the option of the individual professors whether they will permit women to participate in their lectures or not. It is certain that after Prussia has decided to remove the limitations the other states will soon follow, so that women can matriculate at all the German universities on equal terms with men. They may, it should be repeated, take the state examination for the doctor's degree at any German university. At present there are about 400 women as students at all the German universities.

Relations of Professors at the German Universities.

At the close of this semester Professor Quincke will resign his office as director of the medical clinic at Kiel. In this action one of our most eminent professors takes leave of his activity as a teacher. The number of great investigators, to whom the German medical faculties in the second half of the last century owed their prosperity, is now reduced to a small fraction. What brilliant stars have been extinguished in the course of the last two decades from the firmament of German medical science! Virchow, Helmholtz, Du Bois-Reymond, v. Graefe, Volkmann, Langenbeck, Mikulicz, v. Bergmann, Kölliker and many others are gone. If we consider with strict disinterestedness and critical judgment the generation that has followed these men, we must admit that they do not come up to their predecessors in importance. To be sure, many a younger professor may yet win fame for himself, but the hope for it—as must be admitted—is not very great according to the developments so far. This assumption is strengthened by the observation that our age is not so rich in the lights of science as the foregoing. The same phenomenon shows itself in the other departments of science as well as in medicine. Only in technic and that part of the natural sciences closely related to it are there at the present day a not inconsiderable number of eminent men. This observation is true not only of Germany, but of all civilized countries.

Professor Quincke resigns his place not at the request of the government, but of his own free will. The government in Germany has not the power to remove a professor against his will except when he has been guilty of a serious offence. In Austria the university professors are requred by law to retire at the age of 69; there is a so-called age limit. As an honor some of them are permitted to hold their positions another year. It has been a matter of discussion whether such a legal arrangement would not be desirable in Germany, and there is much in favor of it. Few professors have the self-knowledge and the energy to give up their position of their own free will at the moment when intellectual decadence sets in; on the other hand, it is not easy for the government to come to the determination to make known to a meritorious scholar the necessity of his leaving his place. In this way it has been, and still is, our experience that eminent scientists remain in their offices when their intellectual capacity—more important, their ability to teach—make them no longer fit for their positions, which is naturally a disadvantage for the university to which they belong. This was already noticeable with Virchow, and also of v. Leyden it can be truly said that he remained in his place a year longer than was agreeable to the government or to the students. And there are in the German universities, especially in the Berlin university, professors of great reputation (I do not wish to mention names) who it is true still do scientific work to some extent, but no longer fulfill their duty as teachers. In view of these facts, we might wish, in the interests of education, that our government was a little less considerate in personal questions. Such a "golden inconsiderateness" was possessed by the former "ministerial director," Althoff, in a high degree, for which he was naturally blamed in certain quarters. But, although he doubtless overshot the mark in many cases in consequence of his zeal, he knew how to do the right thing generally, and placed business above personal matters.

Pharmacology

THE BROADER AIMS OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

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CLEVELAND, OHIO.

(*Continued from page 421.*)

XX. THE CRITICS OF THE COUNCIL.

The preceding papers of this series have been devoted so largely to condemnation and denunciation, that the work and purposes of the Council may have appeared mainly condemnatory and destructive. This would be far from the truth; for the purposes of the Council are wholly constructive. The actual work, it is true, has been and still is to a considerable extent destructive; but this is merely an incident in the broader aims, and I hope sincerely that the need for it is only temporary.

Much of the matter with which the Council has been concerned was so unsound as to be unsuited for constructive work. A thorough-going trimming, an efficient house-cleaning, was the first necessity. Constructive work has been going on at the same time; but it could scarcely be noticed until the ground had been, at least partially, cleared by the removal of some of the unsound débris. In fact, the Council has tried to utilize even this destructive work for reconstruction. In exposing what was bad, it has attempted to indicate what was good. In condemning a product, it has aimed to point out the way to reformation. In exposing the false pretenses and questionable or dishonest practices of certain manufacturers it has endeavored to foster a sentiment which would place a profitable premium on true, safe and conservative statements; a sentiment which would make it possible to conduct the business of purveying medicines on the highest professional plane.

IMPOSSIBLE TO PLEASE ALL.

It would be quite too much to expect that the Council should perform its complex tasks to the absolute satisfaction of all those, even, who are in sincere sympathy with its aims. Some will always think that it does not go far enough or fast enough; others, that it goes too far or too fast.

Those who think that the Council goes too slowly, should remember that the results of evolution are more permanent than the results of revolution; and that education is more effective than dictation. Education and evolution both require time; but their results are lasting.

Those who consider that the Council has gone too far; that some of its rulings are needlessly severe; that it has in some instances spoken sharply when a soft voice might perhaps have reached as far—should remember that the Council does not deal solely with people who want to do the right thing. It has, unfortunately, all too often to do with people who try to do the wrong thing. The functions of the policeman can not always be performed in a perfectly lady-like manner; and those who are mixed up with a bad mob must expect to receive some incidental raps, for which the policeman, in private, is sincerely sorry.

Both classes of critics should remember that the Council is seriously judging and acting on pressing questions of great complexity and far-reaching importance. Its fund of information and experience for this purpose is probably more extensive than that of any of its critics. I do not pretend, of course, that the Council knows more about a particular product than does its manufacturer; but it would be strange indeed if the Council had not arrived at a broader conception than its critics of the intricate ramifications of the general problem which has been its daily concern for over three years. The critic usually has in mind only one product, or one particular phase of the problem. The Council, on the other hand, must endeavor to look on that product or that phase in the light of all the products and of the whole problem.

THE THERAPEUTICALLY-SUGGESTIVE NAME.

The vexing question of therapeutically-suggestive names may serve as an illustration. Of the several serious objections to these names, the most conspicuous is that they encourage self-medication. The better class of manufacturers now agree with the Council that such a name as "Rheumatica" would be equivalent to advertising to the laity. The Council, on the other hand, might be willing to concede that such a name as "Arthrica" would be without meaning to the public, and might from this standpoint, be admissible. Sooner or later, however, the name "Arthritica" would be submitted. Who can predict how many educated laymen would come to understand what this means? Evidently no one. The manufacturer of "Arthritica," however, would point to "Arthrica" as a precedent; and if "Arthritica" were accepted, it would be very difficult to explain to the manufacturer of "Rheumatica" why his product should be refused. The manufacturer of "Arthrica" has not considered these intermediate cases, which make it impossible to draw a natural line of division. The only safe way to prevent burned fingers is to keep away entirely from the fire.

(*To be continued.*)

MANOLA.

Nostrum Prescribing and Its Results.

MUSCODA, WIS., July 31, 1908.

To the Editor:—Enclosed is a copy of a letter sent to Dr. X. of Y., and his reply in the form of a marked advertisement of Manola clipped from a medical (?) journal. The style of the advertisement sent would lead one to classify the product with "Peruna and the Bracers." The preparation was prescribed by Dr. X. for a Mr. Q., for a cough and "run-down" condition. Q. has been unable to do any work since he began taking it, but for three months he thought it benefited him, after which time he stopped taking it for three months and then took it again for five weeks. As he was emaciating rapidly and was troubled with high fever and night sweats, he came to me, and I found him in an advanced stage of pulmonary tuberculosis. The patient had wasted nearly eight months of precious time, closely housed and depending on the restorative virtues of Manola, instead of consulting a physician at a time when a properly regulated out-of-door life might have saved him. And all because Dr. X. prescribed Manola to be taken for several months.

Who is Dr. X. who did the prescribing? Polk's Register, 1906, records him as a graduate of a university in Germany; surgeon for the C., M. & St. P. Railway Company; member of the American Medical Association; member of the American Association of Railway Surgeons; member of the state historical society; medical examiner, etc. Shades of Æsculapius! This young man, now near death's door, asked me if Manola was not a good medicine, for, said he, "Dr. X., a very prominent physician, prescribed it to be taken continuously for a long time." And what could I, an insignificant doctor, reply? I said, "I don't know. I have not used it." And then I wished that I belonged to some other profession whose members are not "suckers" to bite at the bait of drug promoters and thus help them to fleece innocent persons while on the road to chronic invalidism and death. C. R. PICKERING, M.D.

COMMENT: The above is only one example—a typical one, however—of the results of nostrum prescribing. The physician who in the above instance prescribed Manola—an old practitioner, over 70 years of age—when asked by another practitioner for information regarding it, has to fall back on an advertisement. This is what the advertisement says:

"New strength can be given to the failing heart, tissue changes arrested, and senile decay indefinitely postponed by the prescription of MANOLA which furnishes to the exhausted cell protoplasm the inorganic elements necessary for a renewed and increased activity, improves the quality and quantity of the blood, supports the heart, tones up the nerves.

induces refreshing sleep, and checks the decline of mental and bodily vigor.

"Manola can be depended on in all cases of loss of strength and weight in old and young alike."

A wonderful remedy, truly, that will do all this. Evidently Ponce de Leon in his search for the fountain of eternal youth labored under the insuperable disadvantage of being born 400 years too soon. Had he but known, the fluid he sought, which "indefinitely postpones senile decay" and "checks the decline of mental and bodily vigor" was to be found, not in the untrodden wilds of Florida early in the sixteenth century but in the "laboratory" of a nostrum manufacturer four centuries later.

Had this advertisement appeared in a newspaper and had one of Dr. X's patients consulted him regarding taking this "patent medicine"—for now it would be a "patent medicine"—he would most certainly have told the patient that it was foolish to believe such rubbish and not to waste his money on the stuff. And yet "Dr." Hartmann in his wildest flights of Perunaese oratory has never transcended in mendacious assertiveness the claims made for this "strictly ethical preparation."

Three years ago[1] we exposed the methods by which this nostrum was exploited, and concluded: "Here we have the doctor not only used as an unpaid peddler for a secret remedy, but also as a club to make the druggist fill his shelves with the stuff. . . . Certainly, it can not get much worse, unless the nostrum manufacturers get the doctor to go on the street and peddle their stuff on a percentage."

Manola illustrates another point: One of the curses connected with the nostrum business is the fact that many of the preparations are exploited by pseudo-pharmacal and pseudo-chemical companies. The Manola Company is reported as a side affair, and controlled by those who own the Luyties Homeopathic Pharmacy Company of St. Louis. What is the reason for creating a special company to exploit this nostrum? Is it because physicians might be prejudiced and not willing to buy from a homeopathic concern, or is it because the concern itself wishes to retain at least the outward semblance of decency?

The above case brings out another evil inseparable from nostrums. While the great majority are useless and most of them innocuous, they do harm in a negative way. The layman, depending on the advertisements in the newspapers and believing what the advertisements state, takes a "patent medicine" and delays consulting a physician until too late. In the case of a physician, he, too, believes what the advertisement says, takes it for granted that he is doing what is right, neglects to study his case, to make a correct diagnosis, and to follow up the treatment by careful study of the case as it progresses.

In a case like the above nothing can relieve the physician of his responsibility; he can not fall back on the advertisement. In the case of the patient taking a "patent medicine," he depends on his own judgment. In the case in question, the patient depended on one whom he believed knew what should be done. And the physician was false to his trust!!

Correspondence

Collapse Following Injection of Diphtheria Antitoxin.

KÖNIGSBERG, GERMANY, July 14, 1908.

To the Editor:—Dr. F. W. Thomas' article on "Sudden Collapse Following Injection of Diphtheria Antitoxin," in THE JOURNAL, July 4, leads me to report a similar experience.

J. F., a boy of 13, fairly tall and well developed, had always been in good health. On Jan. 27, 1907, I was called to see his sister, aged 11, who was suffering from an ordinary attack of faucial diphtheria. I gave her at once 3,000 units of antitoxin. The next morning at 10 o'clock I called and administered 1,000 units to each of the other two children—that is, to J. F. and his sister of 6 years—as an immunizing dose.

Immediately after I had injected the dose in the subcapsular region of the boy he fell over, unconscious and pallid, in a cold sweat, with pupils dilated and with no radial pulse. I gave him hypodermically strychnin, gr. 1/30, and whisky, induced artificial respiration and after ten minutes (it seemed hours) he recovered consciousness. He was intensely weak and, of course, remembered nothing of what had occurred. When asked if the pain of the injection had made him faint he said that he had scarcely felt it. I left him about 11:30 a. m. At 2:30 p. m. I was called again hurriedly and found him just about recovering from a similar attack. He had attempted to walk up to the next floor when, without warning, he fell at the foot of the stairs. With the usual restoratives he recovered and, though under observation for several days, had no further trouble.

His little sister of 6 years and the one of 11 years had no such experience, although receiving part of the same batch of antitoxin.

What happened? Were the serum at fault, the other two children ought to have shown some effects from it, and, as antitoxin is always manufactured in large quantities, we should have learned of other similar cases in the district. My belief is that I emptied the entire contents of the syringe into the lumen of a vein, and that the collapse was entirely due to the sudden entrance of a large quantity of foreign fluid into the blood stream. This explanation fits Dr. Thomas' case, too. He had the unpleasant symptoms only after the first injection, although he gave five more within the next twenty-two hours. His patient's poor previous condition accounts for his having recovered more slowly than did my patient. It is also to be assumed that Dr. Thomas used the same quality of antitoxin in all his injections.

Considering the enormous number of times this drug is administered, it is surprising that such accidents have not occurred more frequently. With a crying and struggling child we are apt to plunge the needle almost anywhere and as quickly as possible press the piston home. As the ordinary dose contains one to five cubic centimeters of serum the sudden entrance of this amount into the blood current is bound to have a profoundly depressing effect on the heart. A far safer way would be to take from two to three minutes while injecting and thus avoid experiences such as the above, which are far from pleasant.

ISAAC M. HELLER.

Surgery of Ureteral Calculus.

BOSTON, MASS., July 28, 1908.

To the Editor:—In my article, "The Surgical Treatment of Ureteral Calculus in the Female," in THE JOURNAL, Sept. 28, 1907, there is a short historical summary of the various operations for the removal of stones in the ureter.

I find that I have quite unintentionally omitted in discussing the vaginal route for the removal of stones, to give to Dr. Arthur T. Cabot, of Boston, Mass., due credit for having been one of the pioneers in this field. It was really owing to Dr. Cabot's work that the vaginal route was popularized. In 1884, Emmet ("Principles and Practice of Gynecology," 1884, p. 796) removed a stone through the vagina of a woman by vaginal incision. Emmet found the stone close to the bladder opening of the ureter. At that time Emmet stated that stones situated near the cervix, high up in the vault of the vagina, had better not be approached by the vaginal route because of the danger of opening the peritoneal cavity. Cabot (*Am. Jour. Med. Sc.*, January, 1892, ciii), however, found by dissections that it was safe to attack stones under the broad ligament, and he reported a case in which this operation was done. To quote from his article, "In the female we have even readier access to this part of the ureter through the vagina. The ureter in the last two or even in some cases three inches of its course runs in the broad ligament in close relation to the upper part of the vault of the vagina, where it can be reached and incised without danger of opening the peritoneum." I find also that I have given to Kelly ("Operative Gynecology," Oct. 2, 1906, p. 541) the credit for using a hook to facilitate the removal of the stone. Cabot (loc. cit.) was the first to recommend this maneuver, and he reports a case in which it was of service.

EDGAR GARCEAU.

1. THE JOURNAL A. M. A., May 6, 1905, p. 1462, and Propaganda for Reform in Proprietary Medicines, Fourth Edition, p. 91.

Second Leprosy Conference.

NEW ORLEANS, July 27, 1908.

To the Editor:—In 1897 medical men met in Berlin under the auspices of the German government to study the conditions of leprosy throughout the world. The success of that meeting and the results which followed it have led to another such meeting to be held in August, 1909, at Bergen, Norway, under the auspices of the Norwegian government. It is believed by those in charge of the preliminary program that many members of the profession who are not specialists in this disease would be glad to take part in such a conference as the one proposed, which will deal not only with the pathology, treatment and scientific investigation of the disease, but also with the questions of topography and sanitary measures as applied to leprosy. A list is desired of physicians interested in the question of leprosy in any way. A communication addressed to Dr. Armauer Hansen, Bergen, Norway, or to the undersigned, will secure any published notice, program, etc.

ISIDORE DYER, M.D., 124 Baronne Street.

Miscellany

How to Remove the Blight on the Medical Press.—At the recent Congress for Internal Medicine at Vienna the president, F. von Müller of Munich, appealed to the profession to check the overproduction of articles for the medical press. Especially in internal medicine the periodical literature has assumed such dimensions, he said, that no one can keep an oversight over it all. Even well-endowed libraries are no longer able to subscribe for all the journals relating to internal medicine and its allied sciences. He added that it is not possible to centralize by a congress resolution the periodical literature on medicine according to the model that has been set by chemistry. But the present unbearable conditions can be improved if all factors will work together; authors by restricting what they write to what is really important for the reader; editors by sharply drawing the line between what must be printed and what may be printed, by insisting on condensing and striking out everything that it is superfluous to print. He appeals also to publishing houses, urging them not to found new journals, unless they respond to an actual demand. He added that this might conflict with material interests, but that there are forces above material interests, and he appealed to these for all concerned.

Schwalbe comments on his words in the *Deutsche med. Wchnschr.*, June 4, saying that it is too much to hope for an echo from the publishing houses to this appeal to ideal forces, as they are money-making concerns. But physicians can do much, especially those who may be called on to spread their names on the title page of some new journal, surrounded by the halo of the wealthy patron of science.

He remarks that many professors thus allow their names to appear as a signboard for half a dozen more or less obscure journals; so that while disclaiming all responsibility for the contents of the journal sailing under their name, they do not find it repugnant to serve as a bait to snare subscribers and advertisers. If an editor is unable to find a patron of this kind at home he goes across the border or—as an editor with considerable business talent has recently done there—he secures the name of some medical member of a reigning house. And colleagues are found who are attracted to these "titled" sheets and send in their subscriptions! Advertisers are won in the same way.

He continues that few physicians have any conception of the fraud in the figures published in regard to the circulation of such journals, especially the list of actual subscribers in proportion to their announced edition. Many journals require a still stronger elixir to keep them alive, and they find this in medical write-ups, with or without the connivance of the editor. In this way journals are founded and flourish, they change publishing house and editor from time to time, but there is no change in the harm they do. And some of them rejoice in the protection of "publishers" with high-sounding names.

All these "publishers" should take Müller's appeal to heart, he continues; they nearly all belong to academic circles and should have special regard for the ideals of our science. He urges hospital directors and clinicians to restrain as much as possible the zeal of their assistants to earn their spurs in medical literature and begs all to refrain from publishing anything until it has been sufficiently controlled and is really ripe for public announcement. When a new method or new remedy comes out it is not necessary to have every hospital and clinic in the land publish its experience with the method or remedy. When it has once been thoroughly written up nothing further should be published on the subject, unless it presents a material contribution for or against. The same communication should not appear several times; in a thesis, in a *Centralblatt*, in society proceedings, at a congress and again, possibly, at an international congress. Schwalbe urges further restriction of the "horrible tapeworm articles," saying that if the reader is not convinced by three case histories, nothing more will be gained by two dozen. The bibliography should only be added when it is indispensable for the argument. In regard to the editorial censorship, he exclaims that very few authors welcome any change in their articles. They mostly regard every suggestion of the editor in regard to shortening their articles as a crime of lèse majesté. He has found that the editor is considered of so little importance that his OK is assumed to be a mere formality, and authors send their articles direct to the printer of the journal. Even Virchow had this to contend with. Others merely announce the title of their article and are insulted when told that the article itself must be seen before it can be accepted or declined. Rejected articles may find hospitality in some of the newly founded journals, but these periodicals would soon die a natural death if all their material was second rate. Consequently they manage to secure an article occasionally from some leading man whose good nature impels him to use his pen and his ink as a stimulant to revive or keep alive some of these weakly journals. If these men will take Müller's words to heart, great good will be accomplished, and the present evil conditions will soonest show signs of improvement.

Schwalbe decries further the custom of publishing an article simultaneously in a home and foreign journal, and he suggests that it might not be a bad plan if some of the communications presented at medical congresses could be gone over by some skilled editor before they were presented, to eliminate the superfluous.

International Congress on Tuberculosis.—Dr. John S. Fulton, Colorado Building, Washington, D. C., secretary-general of the International Congress on Tuberculosis, announces the provisional program for Section 2 of this congress, on "Clinical Study and Therapy of Tuberculosis—Sanatoria, Hospitals and Dispensaries." Dr. Vincent Y. Bowditch, Boston, the president of the section, will deliver an address at the opening of the session, Monday, Sept. 29, 1908, and the following program is offered:

Duration of the Actively Infectious Stage. Robert N. Willson and Randle C. Rosenberger, Philadelphia.
Mixed Infections. M. P. Ravenel, Madison, Wis.; Arnold C. Klebs, Chicago.
The *X*-Ray. Francis H. Williams, Boston.
Opsonic Index. T. W. Hastings, New York.

Tuesday, Sept. 29, Symposium on Diagnosis and Treatment of Early Tuberculosis.

Under this head the following topics will be presented: Vital importance of early diagnosis; neglect of thorough examination to be condemned; comparative importance of treatment in sanatoria near at hand and of entire change of climate; the present status of sanatorium treatment; *x*-ray in diagnosis; short exposure roentgenography in early diagnosis; opsonic index in early diagnosis; cutaneous, conjunctival, and ophthalmic reactions; present status of serum diagnosis; early diagnosis by laboratory aids; hemoptysis as a system of early pulmonary disease; physiologic effects of residence in high altitudes; high altitude treatment in regard to fever; diet in pulmonary tuberculosis.

Papers on the topics enumerated will be read by the following: Frederick I. Knight, Boston; C. Theodore Williams, London; Carroll E. Edson, Denver; Lawrence F. Flick, Philadelphia; Francis H. Williams, Boston; Henry Hulst, Grand Rapids, Mich.; George P. Sanborn, Boston; Arnold C. Klebs, Chicago; C. von Pirquet, Vienna; A. Wolff-Eisner, Berlin; Fernand Arloing, Lyons; Paul Courmont, Lyons; E. R. Baldwin, Saranac Lake, N. Y.; James M. Anders, Philadelphia; N. Zuntz, Berlin; O. Amrein, Arosa, Switzerland; Irving Fisher, New Haven; R. C. Newton, Montclair, N. Y.; Noel Bardswell, Midhurst, Eng.

Wednesday, Sept. 30, Symposium on Specific Therapy of Pulmonary Tuberculosis.

1. Tuberculin and its Derivatives.

Treatment by Tuberculins, More Especially by Tuberculin Bernaeck. E. Bernaeck, Neuchatel.

Value and Practicability of Tuberculin Treatment. K. Hammer, Heidelberg; J. Denys, Louvain.

Human and Bovine Tuberculosis, with Special Reference to Treatment by Tuberculin. Nathan Raw, Liverpool.

Specific Therapy. J. Petruschky, Danzig; Edward L. Trudeau, Saranac Lake, N. Y.

2. Serum Treatment.

Marmorek Serum. Alexandre Marmorek, Paris.

Maragliano Serum. E. Maragliano, Geneva.

Periostitis et Adipositis Tuberculosa Toxica Multiplex Treated with Serum Marmorek. O. Amrein, Arosa, Switzerland.

Maragliano Treatment at the Phipps Institute. L. F. Flick, Philadelphia.

Untoward Effects Following the Use of Maragliano's Serum. H. R. M. Landis, Philadelphia.

Thursday, Oct. 1, 1908. Symposium on Sanatoria, Hospitals, Dispensaries and Home Treatment for the Tuberculous.

Treatment and Isolation of Tuberculous Patients in General Hospitals. Louis Landouzy, Paris; Maurice Letulle, Paris.

Cost of Construction and Maintenance of Sanatoria; Class of Cases Suitable; Comparative Value of Sanatoria, Hospitals, etc. Gotthold Pannwitz, Berlin; Arthur Latham, London.

Cost and Maintenance of Sanatoria: Special Reference to Those Established by Insurance Companies. Richard Freund, Berlin.

Graduated Labor in the Treatment of Tuberculosis. M. S. Paterson, Frimley Sanatorium, Eng.

Effect of Manual Labor on the Opsonic Index. A. C. Inman, Brompton Hospital, Eng.

Comparative Value of Rest and Exercise in the Treatment of Tuberculosis. F. M. Pottenger, Monrovia, Calif.

Value and Technic of Rest in Tuberculosis. Norman Bridge, Los Angeles, Calif.

Ultimate Results of Sanatorium Treatment. Lawrason Brown, Saranac Lake.

The Establishment of Dispensaries in Cities and Towns. R. W. Philip, Edinburgh.

Dispensaries for the Prevention of Tuberculosis and Their Object. Albert Calmette, Lille.

Dispensary Examinations of Tuberculous Families: Their Results and Their Significance in the Systematic Combat Against Tuberculosis. A. Kayserling, Berlin.

Work of the Chicago Tuberculosis Institute. Alexander M. Wilson, Chicago.

Comparative Value of the Dispensary and the Sanatorium Treatment of the Tuberculous. Fritz Egger, Basel.

Accommodation of Pulmonary Patients of Advanced Stage. Director Mayer, Brandenburg, Berlin.

Urgent Necessity for Hospitals for Far Advanced Cases. Hector Mackenzie, Brompton Hospital, London.

The New Hospital for Advanced Cases in Boston. Edwin A. Lock, Boston.

Friday, Oct. 2.

Day Camps. David Townsend, Boston.

Night Camps. William C. White, Pittsburg, Pa.

Treatment of Tuberculous Patients in Their Homes and in Places Other Than Sanatoria. Charles L. Minor, Asheville, N. C. Dr. Thomas D. Coleman, Augusta, Ga.

Economic Housing of Consumptives. P. M. Carrington, Fort Stanton, N. M.

Importance of Sanatoria for the Well-to-Do as Well as for the Poor. Charles F. Gardiner, Colorado Springs; Will H. Swan, Colorado Springs; Herbert M. King, Liberty, N. Y.

Friday, Oct. 2. Special Papers Proposed by the French Committee.

Comparative Cytology for the Diagnosis of Tuberculous Effusions. A. Cade, Lyons.

Tuberculous Rheumatism and Inflammatory Tuberculosis of the Viscera. A. Poncet, Lyons.

Tuberculosis in the Etiology of Mental Maladies. R. Lepine, Lyons.

Pleural Tuberculous Adhesions and their Rôle in Sudden Death. Prof. Lacassagne and Dr. Martin.

Sanatorium of Ste. Feyre (Creuse) for Teachers. M. Leune.

Efficacy of Extract of Mistletoe in the Control of Hemoptysis. R. Gaultier.

Economical Treatment of Tuberculosis—Aerium or Hospital Sanatorium. Raoul Brunon, Rouen.

The Rouvray Forest Sanatorium in the Rouen Region. Dr. Cotoni and Dr. Giraud.

Laboratory Methods in Diagnosis of Cutaneous Tuberculosis. J. Nicolas, Lyons.

1. The Mangini Sanatorium and its Achievements. 2. Variations in Respiratory Combustion Among Tuberculous Patients Treated in a Sanatorium at a High Altitude. F. Dumarest, Hauteville.

Special Papers Proposed by the Swiss Committee.

Construction of the Sanatorium at a High Altitude for Tuberculous Patients. H. Verrey, Lausanne.

Clinical Indications and Contraindications for the Climate of High Altitude. Dr. Exchaquet, Leyson.

Asthma and Tuberculosis. Leopold de Reynier, Neuchatel.

Other Special Papers.

Tuberculinum Purum. I. Gabrilowitsch, Halila, Finland.

The Clinical Value of Examinations of the Blood of Tuberculous Patients According to the Method of Arneth. C. Dluski and M. Rozpedzikowski, Lakopane, Poland.

The Therapeutic Value of the Tuberculin Tests Controlled by the Opsonic Method. S. Bernheim, Paris.

The Dislocation of the Lung Apices and the Rules for Locating the First Disease Centers. Carl Hart, Schoeneberg-Berlin.

A Statistical Study of One Hundred Cases of Laryngeal Tuberculosis, Treated with Formaldehyde. E. S. Bullock, Silver City, N. M.

Immunity Production, by Inoculation of Increasing Numbers of Bacteria, Beginning with One Organism; Its Therapeutic Application. Gerald B. Webb, W. W. Williams, Colorado Springs, and M. A. Barber, University of Kansas.

The Prevalence and Treatment of Tuberculosis in Hospitals for the Insane in United States and Canada. Richard H. Hutchings, Ogdensburg, N. Y.

French Cancer Research Association.—In June and July this newly organized association held its first two meetings. They were open to the public and were well attended. Borrel discussed the problem of the origin of cancer, and the two processes in its growth: the progressive transformation on the surface of normal cells into cancer cells, and the growth in the depths by simple cellular multiplication of the already neoplastic elements. The histogenesis of cancer, he said, might be explained by the existence of a virulent agent invading the cells by contact, but this would have to be demonstrated by inoculation and this inoculation can not be done on man. He has observed cancroids developed in the epidermis of rats and mice, exactly at the point of contact with the cells of an inoculated tumor. This seems to show that under certain conditions of inoculation the still problematic cancer virus might pass from the graft to the graft-holder. This is almost a demonstration of the inoculability of cancer. He urged complete and scientific study of "cancer houses," streets, villages and countries, and commented on the epidemics in certain groups of mice. In some fully 10 per cent. of the old females become affected with spontaneous tumors, while other cages are exempt. Experiences at the Pasteur Institute disprove the assumption of local heredity from consanguinity as an explanation of these epidemics. Everything in these mouse cancers seems to suggest, he said, some local cause of contagion. He added that the spontaneous tumors almost always occurred in the dirtier cages, infested with vermin, especially with bedbugs, and the latter also infested with parasites, acari, which they may carry from mouse to mouse in the cages. The microscope frequently reveals débris of large parasites, acari, nematoid worms, etc., in the young spontaneous tumors. Certain cases of cancer in man also plead in favor of the assumption of an acarus as a possible agent of inoculation. One fact only is certain, he concluded, namely, that the different forms of cancer are not directly transmissible from man to man, and that contagion, if it exists, can be only by indirect means. Menetrier addressed the meeting on "Precancerous Morbid Conditions," stating that cancer is not a primary morbid form, but the outcome of multiple anterior and preparatory pathologic conditions from defective development or chronic inflammatory modification. The already modified elements in the precancerous conditions are those which undergo the cancerous evolution.

The Effects of Alcohol on the Liver.—The hepatic conditions due to chronic alcohol poisoning are enumerated by Garnier in the *Progrès Médical*, March 21, 1908, as follows: 1. Latent hepatic steatosis of alcoholics, described by Gilbert and Lereboullet in 1902. This is a purely parenchymatous alteration, coming on without symptoms and usually discovered when the patient comes under observation on account of some other condition. It has a serious prognosis, the patients succumbing rapidly to intercurrent disease. If recognized, however, recovery is possible with total abstinence and proper treatment. 2. Fatty cirrhosis. The hypertrophic form, described almost simultaneously in 1881 by Hutinel and Sabourin, usually due to alcoholism, but may be caused also by tuberculosis; Hanot's and Gilbert's tuberculous fatty hypertrophic hepatitis is the same disease, differing only in its causation. The atrophic form—the atrophic cirrhosis of rapid course of Hanot, also sometimes tuberculous. Both types have a grave prognosis. In all the above a hepatic cell is affected, either alone or simultaneously with the connective tissue. There remains still a class, more numerous and more important, in which the interstitial tissue is alone involved, the venous cirrhosis. This includes: 3. Diffuse alcoholic hypertrophic cirrhosis, described by Gilbert and Garnier in 1897, which may also be caused by tuberculosis, of rapid course, terminating in hypo-

thermic coma. 4. The cirrhosis of Laennec. 5. Hypertrophic cirrhosis described by Hanot and Gilbert in 1890, of less serious import than the others. The hepatic cell in this disease shows a remarkable vitality, sometimes revealing itself in an accumulation of pigmentary granules—the pigmentary hypertrophic alcoholic cirrhosis. Another variety of this type is the anascitic, relatively benign, but frequently with severe gastro-esophageal hemorrhages which may be fatal. Still another variety is the diabetic form. The integrity of the hepatic cell is the common peculiarity of all. The diagnosis of alcoholic cirrhosis is easy in typical cases, but may be rendered difficult by coexistence of more than one form. In summing up the effects of alcohol on the liver, Garnier says that, in whatever way it acts, it injures the hepatic cell, and that experimental cirrhosis has not been produced, is doubtless due to the fact that the experiments are carried over too brief a period—the animals succumb before their lesions have time to cicatrize. Sclerosis is explainable without invoking any hypothetic action of alcohol on the connective tissue; the poison attacks and kills the liver cell; if the process is slow and only a few cells are killed at a time, the connective tissue hypertrophies and takes the place of the destroyed cells, a fibrous cicatrix forms and the process of sclerosis begins. In acute overwhelming liver intoxication the cell is functionally disordered, and, while icterus may appear, it is not usually so severe as to cause death. If the intoxication is chronic, from doses frequently repeated but not singly capable of producing massive intoxication, but still considerable, the cell becomes profoundly affected, undergoes fatty degeneration, and frequently the organism gives way and death follows with the symptoms of hepatic insufficiency which are those of fatty hypertrophic cirrhosis. With a more gradual toxic process, the cellular lesions are more discrete and may give rise to no prominent symptoms; we find only the fibrous cicatrices left which give rise to simple cirrhosis. This is what occurs from small doses taken over a long period, as in wine drinking, in which it often occurs, which Lancereaux considered to affect the interstitial tissue especially. The cirrhosis here indicates the attempt of Nature to repair damage; the organism defends itself as best it can. If the defense is relatively successful, the cirrhosis takes the hypertrophic form; if, on the other hand, the resistance is less well organized or the toxic attack too strong, the liver gives way, the cirrhosis of Laennec is produced, leading most often to a fatal termination.

Pathogenesis and Relief of Medical Nomenclature.—Mamlock in a communication in the *Deutsche medizinische Wochenschrift*, July 2, reiterates the protest against the application of personal names to diseases, etc. He quotes a number of new rank instances of this abuse from recent medical literature, among them the technic for serum diagnosis of syphilis, indexed in the German journals as the "*Wassermann-A. Neisser-Brucksche Reaktion.*" The new cutaneous tuberculin reaction is also recently referred to in the *Wiener klinische Wochenschrift* as "*Perlsucht-Pirquet.*" He regards this latter term as a verbal "neoformation which must be regarded as unusually malignant." He suggests that the time has now come for revision of medical nomenclature from the bottom up, as has been done for anatomy and as is now being attempted in neurology. The principles adopted by the BNA would be most excellent for the purpose, he says. These principles are short and simple terms, philologically correct—merely memory signs, not necessarily laying any claim to description or to speculative interpretation—and that related terms shall, so far as possible, be similar, and that adjectives, in general, shall be arranged as opposites. The objections against the retention of personal names are stated by the BNA as: 1, historical injustice is frequently done, the name borne being that of some later worker; 2, the variations of the name in different countries; 3, in the literature of the specialties personal names are often used in great excess; and 4, no systematic plan seems to have been followed in adopting personal names. The only convincing argument in favor of retention of personal names is to awaken the historical sense of the student. The BNA compromised by adding to the objective name the personal name in brackets, leaving to time the final decision. Mamlock thinks that the revision of medical nomenclature would be a grateful task for an international medical congress, and that no one could have any objections to the appointment of a special committee for this purpose.

Sudden Death in Dementia Præcox.—A. Gianelli, *Rivista di Patalogia nervosi e mentale*, April 4, 1908, reports the cases of two patients, suffering from dementia præcox, one of 13 years and the other of 4 years' duration. Both patients died suddenly in syncope, while apparently in ordinary good physical health. The autopsies revealed nothing sufficient to account for the deaths except that, as in somewhat similar cases reported by Dreyfus and Tetzener, there was a swollen condition of the brain and a much less than normal difference between the volume of the brain and the cranial capacity as measured by water. In Dreyfus' case this was only 1.2 per cent., while normally it should vary between 10 and 15 per cent., the brain weight being 1,592 grams while the cranial capacity was 1,610 c.c. In Gianelli's cases the proportions were very similar, the cranial capacities being 1,396 and 1,472 c.c. respectively to brain weights of 1.320 and 1.450 grams. In Dreyfus and Tetzener's patients, however, death was preceded by convulsions, which were lacking in both of Gianelli's patients. He suggests that the cerebral swelling may have been more sudden in his cases, paralyzing at once the bulbar centers of respiration and circulation.

Protracted Subfebrile States in Children.—G. Jacobson has encountered a number of cases in which children seemed to be a little ailing for a long time, for months or years, and the thermometer showed a slight increase of temperature, this subfebrile condition persisting unmodified by iron, quinin or antipyretic drugs. Any overexertion had a tendency to exaggerate the fever, even prolonged reading, and remaining in bed attenuated it, but never banished it completely. Periods of intermission occurred occasionally, lasting a week to six months, and during these afebrile periods the children grew strong and ruddy, but began to pine again as the subfebrile temperature returned. The urine and blood findings were always negative, and none of the children has shown any signs of tuberculosis. All of them, however, had suffered at some time from adenoid vegetations, chronic pharyngitis or from follicular tonsillitis or earache. The throat symptoms were insignificant or the findings were apparently negative, but closer examination revealed some unsuspected insignificant focus of persisting nasopharyngitis, cure of which restored conditions to normal at once. Jacobson's communication on the subject was published in the *Bulletins de la Société de Pédiatrie*, May, 1908.

Puerperal Staphylococcus Infection.—G. L. Basso reports 3 cases and reviews 22 he has found in the literature in which staphylococcemia occurred in pregnant women or puerperæ. Only 5 of the patients recovered. The 9 patients with *Staphylococcus albus* all died. He ascribes the recovery in one of his 3 cases to intravenous injections of mercury bichlorid, the chills and fever subsiding under their influence, while the pulse rate did not seem to be affected. There does not seem to be any specific syndrome for staphylococcus infection differentiating it from streptococcus sepsis. The course of the sepsis was acute, subacute or chronic, its duration ranging from four days to three months. His monograph on the subject fills the *Ginecologia*, April 30, 1908.

Alienists' Testimony and the Weber Case in France.—Three years ago a woman named Jeanne Weber was accused of having strangled six children in her charge in the course of two years, including some of her own children, the others her nephews. The medical experts in the case were Brouardel, Thoinot, Brissaud, Socquet and four other specialists. Their verdict was unanimous that the children had died natural deaths. After her acquittal the woman lived with a man for several months, when his child also died and she was again arrested. Thoinot and Socquet, two of the former experts, declared that the child had died of intestinal trouble. After this the woman led a wandering, outcast life, public opinion holding her responsible for having killed seven children. Last May the child of a friend spent the night with her, at her request, and the child was found dead from unquestionable strangulation. The public is denouncing the experts who

allowed the woman to continue her murderous career. The alienists now believe that the woman's privations and mental distress have induced an actual obsession until she finally committed the act of which the public believed her guilty in the past. The newspapers are publishing interviews with various medical men, and medicolegal testimony is receiving much unfavorable criticism. The "Weber children" have been cited in the literature of late as examples of a familial tendency to "thymus death."

Some Vital Statistics from Europe.—According to the official statistics, Germany stands next to the highest of European countries in respect to the increase in population for the year 1906, the excess of births over deaths being 14.9 per thousand of the population. The figure was 13.2 per thousand the preceding year. In Denmark the percentage was slightly higher, 15.1 per thousand. For the year 1905, several countries, Bulgaria, the Netherlands, Roumania and Denmark exceeded Germany, but so far as the reports from other countries in Europe are at hand, the proportion was considerably lower, France having only 0.9 per thousand. The number of divorces in Germany has increased from 7,928 in 1900 to 12,180, Berlin having one divorce to each fourteen marriages. The number of marriages was 16.3 per thousand inhabitants, a slight increase over former years. France and Ireland had the lowest birth rate, 1900-1905, it being respectively 21.2 and 23.1 per thousand. Russia led with 41.6; Germany had 34.7, and Great Britain 26 during this five-year period. The *Semaine Médicale* cites figures to show that the birth rate has fallen in all the countries of Europe since 1900, except in Ireland, Spain and Roumania.

Effect of Roentgen Rays on Young Amphibians.—Illumination by Roentgen rays has a decidedly detrimental and destructive effect on young animals, as indicated by the experiments of Dr. H. E. Schmidt (*Archiv für mikroskopische Anatomie und Entwicklungsgeschichte*). His work confirms that of Perthes, Schaper, Bohn, Gilman and Baetjer who found that exposure to Roentgen rays, as well as to radium, had an inhibitory effect on the growth of young larvæ and the hatching of eggs. Schmidt exposed axolotl eggs to Roentgen illumination, using as controls eggs from the same spawn. The results of the experiment indicate that such exposure reduces the hatching 100 per cent. and that the animals invariably die a short time after hatching. The most marked effect was on the brain and spinal cord. Scarcely any trace of normal nervous tissue of the brain and cord could be found in animals after exposure. It is his opinion that the brain and spinal cord show a distinct susceptibility to destruction by Roentgen and radium rays.

Book Notices

HERNIA. By R. W. Murray, F.R.C.S., Surgeon, David Lewis Northern Hospital, Liverpool. Cloth. Pp. 99, with illustrations. Price, $1.80. Philadelphia: P. Blakiston's Son & Co., 1908.

The author is a warm supporter of the so-called saccular theory of hernia first brought forward by Mr. Hamilton Russell of Melbourne. According to the views of Russell and the author a preformed sac offers the only satisfactory explanation of all abdominal herniæ which have no definite traumatic origin. Many believe there is considerable evidence in favor of this saccular theory and agree with the statement that "in a fair proportion of adult herniæ the sac is of congenital origin." One can not agree, however, with the author when he advocates as his method of operation, high ligation of the sac and overlapping of the external oblique aponeurosis. A larger experience and more careful revision of cases will be necessary before surgeons will consent to the principles of the Bassini operation or its modifications. An investigation made by Dr. Nathan Raw (page 8) for the author is of great interest in connection with the question of recurrence of herniæ after operation. In 200 consecutive postmortem examinations a potential hernial sac was found in 47, and in these 47 bodies 68 diverticula were present. Of the latter 13 were inguinal, 52 femoral and 3 umbilical. In 16 cases more than one diverticulum was found. The book is a valuable one in view of the novelty of the theories presented and is worthy of a careful perusal.

SKIN AFFECTIONS IN CHILDHOOD. By H. G. Adamson, M.D. (Lond.), M.R.C.P., Physician for Diseases of the Skin, Paddington Green Children's Hospital. Cloth. Pp. 287, with illustrations. Price, $2.00. New York: Oxford University Press, 1907.

The author deals with the various affections of the skin, particular attention being paid to those diseases peculiar to early life, e. g., ringworm of the scalp, lichen urticatus and the eruptions of congenital syphilis.

The book is well written and the specialist's point of view is not too much to the fore. Congenital syphilis, for instance, is properly regarded as a general disease, and the author discusses chiefly the dermatologic aspects of this affection, due weight being given to other physical signs as aids to diagnosis.

The directions for treatment of the various affections, on the whole, are good, though more of detail might have been introduced. No allusion, however, is made to the opsonic management of the multiple abscesses in infants, due to the staphylococcus. In view of the favorable reports of this method of treating these infections it deserves mention. The book fulfills fairly well the intention of the author, expressed in the preface, of being "a practical guide to the clinical study and treatment of skin affections in children."

MUSCLES OF THE EYE. By Lucien Howe, M.A., M.D., Professor of Ophthalmology, University of Buffalo. In Two Volumes. Vol. I. Illustrated. Cloth. Pp. 455. Price, $4.25 net. New York and London: G. P. Putnam's Sons, 1907.

The author in the preface states that in view of the mass of accumulated literature on muscular anomalies it would be useless to add to it were it not on a plan different in its scope from that of the various detached articles already written. His plan is: 1. To collect data relating to this subject, separating as clearly as possible demonstrated facts from statements based on theory. 2. To formulate these concisely and in the simplest terms possible. 3. To supply data needed to correlate our anatomic and physiologic facts without clinical experiences. He has approached the subject in a way that will be appreciated by the practical ophthalmologist. There are numerous illustrations, chiefly in black and white, and photography has been brought into use to register various ocular movements. In an appendix are photographs and biographic notes of ophthalmologists who have particularly concerned themselves with the ocular muscles. It is to be hoped that the second volume will bear out the promise shown in this first volume.

SYPHILIS. By Edward L. Keyes, Jr., A.B., M.D., Ph.D., Clinical Professor of Genitourinary Surgery, New York Polyclinic Medical School and Hospital. Pp. 577, with illustrations. Price, $5.00. New York: D. Appleton & Co., 1908.

This work is based on cases seen in private practice and not on hospital records, which usually deal with the severer forms of the disease. The chapter on prophylaxis is good and is of especial interest. Keyes speaks highly of mercurial injections, especially injections of the insoluble salts, and states that in cases in which mercury will act at all these injections are more efficient than other methods of administration of this drug. He gives a secondary place to the iodids. The general practitioner will find this a practical and reliable work.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

DESTRUCTION OF ROACHES.

LUMBERTON, N. C., July 8, 1908.

To the Editor:—Can you give me a positive means for the destruction of roaches? A. THOMPSON.

ANSWER.—The so-called Persian or Dalmatian insect powder, pyrethrum flowers, unofficial, appears to be the most effective roach exterminator, but when these insects have obtained the upper hand, it is extremely difficult to get rid of them. The

powder should be dusted into every crack and crevice daily until the pests have disappeared; the application of the powder should be most thorough. Borax has been used and by some people it is believed to be as efficient as the insect powder. It is dusted in the places where the roaches congregate and breed.

ANTISEPTIC POWER OF SOAPS.

DAVIS, W. VA., July 9, 1908.

To the Editor:—Please give the antiseptic strength of such soaps as detergol, sinol and lysol. DRS. HARDY and BUTT.

ANSWER.—Soaps have slight antiseptic power; this is greater when they are markedly alkaline, as the official sapo mollis. Recent investigations indicate that the antiseptic power is more marked with salts (soaps) of the saturated fatty acids (e. g., stearic) than in the case of soaps of the unsaturated fatty acids. While free alkali increases the antiseptic power of the soaps, the investigations indicate that increase in bactericidal power depends more on alkali liberated by hydrolysis when the soap is dissolved in water than on alkali already present in the soap. (Reichenbach, H.: *Ztschr. f. Hyg. u. Infekt. Krank.*, LIX, 296.) We find no reference to sinol or detergol. Lysol is a preparation of cresol, practically identical with liquor cresolis compositus, U. S. P., and is said to have about the same germicidal power as phenol (carbolic acid). This is given by some authorities as 1 to 333.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 1, 1908:

Kirkpatrick, T. J., major, M. C., granted leave of absence for one month, about August 15.

Kendall, W. P., major, M. C., ordered from Ft. Ethan Allen .Vt., to Ft. Ontario, N. Y., for temporary duty, and return.

Girard, J. B., col., M. C., detailed to represent Medical Dept. of the Army at the Fifth Pan-American Medical Congress at Guatemala, Aug. 5 to 10, 1908.

Shaw, H. A., major, M. C., granted leave of absence for one month, about August 8.

Moncrief, W. H., capt., M. C., granted leave of absence for two months, when services can be spared, with permission to ask extension of one month.

Reagles, Jas., contract surgeon, granted sick leave of absence for twenty days.

The following named first lieuts., M. R. C., recently appointed from contract surgeons, with rank from July 7, 1908, were ordered to active duty in the service of the United States, July 28, 1908:

Anderson, E. A.,	Halliday, C. H.,	Patterson, E. W.,
Ashburn, J. K.,	Hereford, J. R.,	Priest, Howard,
Bierbower, H. C.,	Holmes, T. G.,	Richardson, G. H.,
Brown, I. C.,	Hughes, M. E.,	Sabin, W. E.,
Brown, P. D.,	Jackson, T. W.,	Shepherd, J. M.,
Brown, W. E.,	Jenkins, F. E.,	Sievers, R. E.,
Campbell, G. F.,	Johnstone, E. K.,	Slayter, J. T. H.,
Clayton, G. R.,	Jones, E. C.,	Smith, R. D.,
Cook, G. W.,	Jones, G. B.,	Smith, W. H.,
Cullen, C. W.,	Kellogg, P. S.,	Sparrenberger, F. H.,
Cutliffe, W. O.,	Leeper, J. F.,	Springwater, S. A.,
Davis, O. F.,	Le Hardy, J. C.,	Stallman, G. P.,
Delacroix, A. C.,	Lemmon, Robt.,	Stephenson, A. V.,
De Krafty, S. C.,	McCord, D. P.,	Stuckey, H. W.,
de Niedmann, W. F.,	McLeod, H. C.,	Tetrault, C. A.,
Dulin, C. T.,	McPheeters, S. B.,	Thorne, J. I.,
Eliot, H. W.,	Merrick, J. N.,	Treuholtz, C. A.,
Escobar, J. A.,	Mills, F. H.,	Tukey, W. H.,
Farrow, E. J.,	Mount, J. R.,	Tyler, G. T.,
Hadra, Fredk.,	Myers, W. H.,	Walker, T. C.,
Hall, W. E.,	Pascoe, J. B.,	Wheate, J. M.,

Navy Changes.

Memorandum of changes in the Medical Corps, U. S. Navy, for the week ending Aug. 1, 1908:

Payne, J. H., P. A. surgeon, detached from the Navy Yard, Boston, and ordered to the *Salem* when commissioned.

Bacon, S., asst.-surgeon, detached from the Naval Hospital, New Fort Lyon, Colo., and ordered to the *South Dakota*.

Crow, G. B., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va.

Chilton, A. L., asst.-surgeon, ordered to the Naval Hospital, Philadelphia.

Phelps, J. R., asst.-surgeon, ordered to the Naval Hospital, Boston.

Butts, H., asst.-surgeon detached from the Naval Station, Cavite, P. I., and ordered to the Naval Hospital, Canacao, P. I.

Kelly, H. L., asst.-surgeon, detached from the Naval Hospital, Canacao, P. I., and ordered to the Naval Station, Cavite, P. I.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and other officers of the Public Health and Marine-Hospital Service for the seven days ended April 29, 1908:

Banks, C. E., surgeon, granted leave of absence for 20 days, from Aug. 23 1908.

Carrington, P. M., surgeon, granted leave of absence for 16 days, on account of sickness.

McIntosh, W. P., surgeon, granted leave of absence for one month, from Aug. 14, 1908.

Cobb, J. O., surgeon, granted leave of absence for 7 days, from July 29, 1908.

Stoner, J. B., surgeon, granted leave of absence for 1 day, July 26, 1908.

Wertenbaker, C. P., surgeon, directed to proceed to Wachapreague and Cape Charles City, Va., for the purpose of examining keepers and surfmen of the Life-Saving Service.

Blue, Rupert, P. A. surgeon, detailed as member of a Revenue-Cutter Service retiring board, San Francisco, Aug. 3, 1908.

King, W. W., P. A. surgeon, detailed as member of a Revenue Cutter Service retiring board, San Francisco, Aug. 3, 1908.

Stimson, A. M., P. A. surgeon, granted leave of absence for 1 month and 15 days, from Aug. 17, 1908.

Bryan, Wm. M., asst.-surgeon, granted leave of absence for 1 day, July 21, 1908, under Paragraph 191, Service Regulations.

Brinckerhoff, W. R., director leprosy investigation station, granted leave of absence for 30 days, from Aug. 3, 1908.

Bailey, C. Williams, acting asst.-surgeon, granted leave of absence for 7 days, from July 28, 1908.

Baird, W. A., acting asst.-surgeon, granted leave of absence for 16 days, from July 16, 1908.

Gleason, C. M., acting asst.-surgeon, granted leave of absence for 20 days, from Aug. 1, 1908.

Kennedy, G. R., acting asst.-surgeon, granted leave of absence for 30 days, from July 23, 1908.

Small, E. M., acting asst.-surgeon, granted leave of absence for 4 days, from June 20, 1908.

Stearns, H. H., acting asst.-surgeon, granted leave of absence for 1 day, on account of sickness, July 13, 1908.

Tuttle, Jay, acting asst.-surgeon, granted leave of absence for 30 days, from Aug. 2, 1908.

Villoldo, P., acting asst.-surgeon, directed to proceed to Cienfuegos, Cuba, for temporary duty, upon completion of which to rejoin his station at Havana.

Watkins, McD., acting asst.-surgeon, granted leave of absence for 1 day, July 29, 1908.

BOARD CONVENED.

A board of medical officers was convened to meet at Seattle, for the purpose of examining an alien immigrant. Detail for the board: Passed Assistant Surgeon M. W. Glover, chairman; Assistant Surgeon C. W. Chapin, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 31, 1908:

SMALLPOX—UNITED STATES.

Illinois: Chicago, July 11-18, 1 case.
Indiana: Fort Wayne, June 27-July 4, 1 case; Indianapolis, July 12-19, 17 cases; La Fayette, July 13-20, 1 case; South Bend, July 11-18, 4 cases.
Kansas: Wichita, July 11-16, 1 case.
Louisiana: New Orleans, July 11-18, 1 case.
Ohio: Cincinnati, July 10-17, 1 case; Springfield, July 11-18, 1 case; Toledo, June 27-July 11, 7 cases.
Washington: Spokane, July 4-11, 7 cases.
Wisconsin: La Crosse, July 11-18, 6 cases.

SMALLPOX—FOREIGN.

Algeria: Algiers, June 27-July 4, 2 deaths.
Arabia: Aden, June 15-29, 8 deaths.
Brazil: Bahia, June 1-30, 115 cases, 1 death; Para, June 27-July 4, 2 cases, 2 deaths; Rio de Janeiro, July 14-21, 378 cases, 151 deaths; Santos, July 15-21, 1 death.
Canada: Halifax, July 4-11, 1 case.
China: Foochow, June 6-13, present; Nanking, June 4-11, epidemic.
Egypt: Cairo, June 17-July 1, 7 cases, 4 deaths; Suez, May 27-June 24, 4 cases.
India: Bombay, June 9-23, 49 deaths; Calcutta, May 31-June 13, 25 deaths.
Italy: Genoa, May 1-31, 2 cases; Naples, June 20-July 4, 12 cases; Palermo, 6 cases, 1 death.
Japan: Kobe, June 13-20, 4 cases; Osaka, June 6-20, 13 cases, 4 deaths.
Java: Batavia, May 31-June 13, 7 cases.
Mexico: Aguascalientes, July 5-12, 1 death; Mexico City, May 31-June 6, 16 deaths.
Peru: Lima, June 27, 1 case.
Portugal: Lisbon, June 27-July 4, 2 cases.
Russia: Moscow, June 20-27, 24 cases, 7 deaths; Odessa, 3 cases; Riga, June 27-July 11, 6 cases; St. Petersburg, June 13-27, 117 cases, 21 deaths; Warsaw, May 23-30, 7 deaths.
Siberia: Vladivostok, June 4-14, 3 cases.
Spain: Valencia, June 27-July 4, 4 cases, 1 death.
Straits Setttlements: Singapore, May 31-June 13, 2 deaths.
Turkey in Europe: Constantinople, June 28-July 5, 10 deaths.
Turkey in Asia: Bagdad, May 16-June 21, 36 cases, 23 deaths.

YELLOW FEVER.

Brazil: Manaos, June 13-27, 14 cases, 14 deaths; Para, June 20-27, 2 cases, 2 deaths; Rio de Janeiro, June 14-21, 1 case.
Cuba: Daiquiri, July 28, 2 cases, 1 death.
Mexico: Laguna, June 27-July 4, 1 case; Veracruz, July 14-17, 2 cases.

CHOLERA.

Ceylon: Colombo, June 6-13, 3 deaths.
India: Bombay, June 9-16, 1 death; Calcutta, May 31-June 6, 52 deaths; Rangoon, May 31-June 13, 14 deaths.

PLAGUE—UNITED STATES.

California: Alameda County—Oakland, July 21, 1 case, 1 death; Contra Costa County—Concord, July 15, 1 case, 1 death; Prencis Valley, July 24, 1 case, 1 death—10 miles from Martinez.

PLAGUE—FOREIGN.

China: Canton, June 13-20, present.
India: Bombay June 9-23, 69 deaths; Calcutta, May 31-June 6, 45 deaths; Rangoon, May 31-June 13, 68 deaths.
Indoo-China: Saigon, May 31-June 13, 30 cases, 26 deaths.
Japan: Osaka, June 6-20, 2 cases, 3 deaths.
Peru: general, June 20-27, 53 cases 16 deaths; Callao, 1 case.
Turkey in Asia: Bagdad, May 16-June 21, 36 cases, 23 deaths.
Venezuela: Caracas, July 18-23, present; La Guaira, present.

Association News

HONORARY MEMBERS.

Acknowledgments from Distinguished Foreigners Recently Elected.

LONDON, July 12, 1908.

To the General Secretary, American Medical Association:

I beg to acknowledge the receipt of your letter of June 30, informing me that the House of Delegates had elected me an honorary member of the American Medical Association, and I wish to express to you my gratification at this great compliment which they have paid me. With kind regards, believe me. Yours very truly, E. TREACHER COLLINS.

BERLIN, July 14, 1908.

To the General Secretary, American Medical Association:

It gave me great pleasure to learn that the House of Delegates has honored me by the election among the number of the honorary members of the American Medical Association. I admire the Association as the most powerful medical corporation of the world, representing the scientific as well as the ethical interests of the profession. When witnessing the proceedings in June, I felt deeply impressed by the work of the Association in both directions.

This honorary membership I esteem the highest title that has been conferred on me. I beg to express my thanks to the House of Delegates, and to remain,

Very truly yours, A. MARTIN.

EDINBURGH, July 14, 1908.

To the General Secretary, American Medical Association:

I esteem it a high honor to have been elected an honorary member of the American Medical Association and beg you to convey my appreciative thanks to the House of Delegates. With kind regards, believe me,

Yours sincerely, E. A. SCHÄFER.

[COMMENT.—The present list of honorary members is as follows: Prof. O. Haab, Zurich, Switzerland, elected 1902; Prof. A. Maitland Ramsay, Glasgow, Scotland, 1904; Prof. A. Logan Turner, Edinburgh, Scotland, 1904; Prof. J. Hirschberg, Berlin, 1905; Prof. A. von Rosthorn, Heidelberg, Germany, 1906; Prof. F. Trendelenburg, Leipsic, Germany, 1906; Prof. L. Killian, Freiburg, Germany, 1907; Prof. Carl Hess, Würzburg, Germany, 1907; Prof. Edward F. Schäfer, Edinburgh, Scotland, 1908; Prof. August Martin, Berlin, Germany, 1908, and Prof. E. Treacher Collins, London, 1908.—ED.]

NEW MEMBERS.

List of new members of the American Medical Association for the month of July, 1908:

ALABAMA.

Appleton, H. L., Gadsden
Cole, H. P., Mobile.
Greene, J. B., Birmingham.
Harris, A. B., Birmingham.
Robinson, Annie M., Birmingham.
Seay, J. E., Pratt City.

ARIZONA.

Wilson, J. C., Willcox.

CALIFORNIA

Hadden, David, Berkeley.
Nagel, C. S. G. San Francisco.
Onesti, S. J., San Francisco.
Temple, Jackson, Santa Rosa.
Thompson, H. A., San Diego.
Thompson, L. L., Gridley.

COLORADO.

Barry, J. D., Denver.
Plumb, C. W., Grand Junction.

CONNECTICUT.

Henze, C. W., New Haven.
Laden, M. R., Hartford.
Kebler, L. F., Washington.
Walker, R. R., Washington.

GEORGIA.

Fullilove, H. M., Athens.

HAWAII.

Weddick, John, Wailuku, T. H.

ILLINOIS.

Adams, D. S., Macomb.
Akins, J. C., Forreston.
Berfield, Clyde, Castleton.
Blough, G. F., Camp Grove.
Boren, A. J., Stillwell.
Bowers, G. S., Galesburg.
Bowman, W. T., Moweaqua.
Braun, H. W., Mounds.
Brewer, E. M., Rantoul.
Briggs, F. E., Roanoke.
Cavel, J. V., Harrisburg.
Carr, R. H., Chicago.
Clyne, Meade, Chicago.
Cord, C. E., Chicago Heights.
Culver, Eugenia M., Glencoe.
Douglass, D. T., Colfax.
Ferrell, Barney, Carterville.
Gardner, I. A., Chicago.
Golden, J. F., Chicago.
Gray, W. B., Altona.
Hall, F. G., Galesburg.
Hare, C. B., Chicago.
Hendricks, E. L., Lanark.
Horn, Albert T., Chicago.
Hottinger, E. S., Chicago.
Howard, C. E., Lewistown.
Humphrey, D. W., Bowen.
Jansen, S. A., Chicago.
Keech, R. K., Decatur.
Lewis, T. W., Chicago.
Liggitt, F. L., Rankin.
McDermid, Andrew, Chicago.
Medaris, Anna, Chicago Heights.
Michael, O. W., Muncie.
Myers, J. C., Clinton.
Mitchell, R. A., Marshall.
Morlan, H. J., Ludlow.
Peacock, Albert, Chicago.
Rider, C. J., Bushnell.
Robb, F. C., Farmington.
Roberts, I. T., Johnston City.
Rogers, N. C., Rockford.
Ross, J. F., La Prairie.
Schreifels, Leonard, Granite City.
Schwartz, Rollin, Evanston.
Schwarz, L. E., Chicago.
Shelton, W. B., Bingham.
Snively, W. D., Rock Island.
Taylor, E. D., Woodhull.
Terry, H. A., Tampico.
Volini, Camillo, Chicago.
Warner, F. G., Grafton.
Weir, C. E., Berwick.
Weld, E. H., Rockford.
Whitefort, A. R., St. Elmo.
Wiggins, G. A., Milan.

INDIANA.

Anderson, D. A., Indianapolis.
Faber, J. V., Harrodsburg.
Bentle, Perry C., Greensburg.
Carver, W. F., Albion.
Cook, S., Gentryville.
Egolf, H. M., Liberty.
Elliott, R. H., Connersville.
Feagler, J. P., Mishawaka.
Frink, C. W., Elkhart.
Harris, O. K., Ellettsville.
Heller, Fred, Brownstown.
Hewitt, H. S., Mishawaka.
Hoover, E. M., Elkhart.
Hutto O. D., Kokomo.
Kitchell, J. E., Deer Creek.
Lee, G. W., Lafayette.
Lockridge, A. B., Rockville.
Longfellow, T. W., Windfall.
Martin, W. H., Kokomo.
McAuliffe, D. L., North Vernon.
McBride, F. B., National Military Home.
McKee, C. E., Dublin.
Mobley, L. F., Summitville.
Resler, F. L., Amboy
Ross, L. F., Richmond
Schenck, F. O., Crawfordsville.
Storch, L. A. E., Indianapolis.
Trueblood, J. W., Monroe City.
Veach, P. H., Staunton.
Wainscott, O. C., Peru.

IOWA.

Bowers, A. S., Orient.
Bridgeman, H. L., Columbia.
Garrett, J. M., Ft. Dodge.
Haerem, H. T. K., Story City.
Haisch, O. E., Dubuque.
Hogle, W. M., Keokuk.
Jones, H. D., Schleswig.
Langworthy, H. G., Dubuque.
McCall, H. E., Clearfield.
McEwen, Earle, Mason City.
Phillips, W. C., Clarinda.
Prescott, L. W., Sloan.
Stalford, J. H., Sac City.
Wallahan, J. H., Corning.

KANSAS.

Lake, M. E., Erie.
Morrow, N. C., Altamont.

KENTUCKY.

Barnette, W. T., Mackville.
Berkshire, P. L., Spottsville.
Bloom, I. N., Louisville.
Blayes, H. B., La Grange.
Carter, W. F., Brodhead.
Casner, A. A., Joy.
Jordan, J. C., Rocky Hill.
O'Connor, B. J., Louisville.
Page, W. A., Barlow City.
Parsons, W. H., Kosmosdale.
Redmon, L. C., Lexington.
Russell, G. F., Louisville.
Simpson, J. P., Herschel.

LOUISIANA.

Rooks, J. E., Doyline.
Veazie, H. A., New Orleans.

MAINE.

Richardson, H. K., Bradford.

MARYLAND.

Freeman, E. B., Baltimore.

MASSACHUSETTS.

Plunkett, H. B., Lowell
Ritter, Henry, Springfield.
Sinclitico, Giuseppe, Lawrence.
Young J. H., Boston.

MICHIGAN.

Bryant, B. L., Detroit.
Greene, A. E., Leslie.
Iverson, Christine, Kalamazoo.
Marks, W. J., Jackson.
Maxwell, J. C., Paw Paw.
Merritt, C. W., St. Joseph.
Morse, W. F., Saginaw.
Odell, Anna, Detroit.
Pasternacki, B. W., Detroit.
Sanderson, J. H., Detroit.
Schulte, Jos., Detroit.
Stewart, J. D., Hartford.
Taylor, R. S., Detroit.

MINNESOTA.

Duncan, Wm. T., Fergus Falls.
Hall, E. E., Little Falls.
Jensen, J. C., Hendricks
Kirkwood, S. M., St. Paul.
O'Brien, R. P., Minneapolis.
Plehn, J. F., Bellingham.

MISSISSIPPI.

Garraway, C. R., Shipman.
Hickman, W. W., Noxapeter.
Young, J. W., Grenada.

MISSOURI.

Andrews, John, Grant City.
Best W. W., Bolckow.
Butler, L. P., St. Louis.
Hayden, J. G., Kansas City.
Hopkins, Ross, St. Louis.
Johnson, W. L., St. Louis.

MONTANA.

Spelman, J. F., Anaconda.

NEBRASKA.

Ballard, C. H., Omaha.
Betz, W. H., Bellevue.
Cerny, Joseph, Wilber.
Dwyer, T. J., Omaha.
McCleneghan, Sam'l, Omaha.
Patterson, Franklin.
Watson, E. A., Plainview.
Wearne, F. J., Omaha.
Wills, C. L., Anselmo.

NEW HAMPSHIRE.

Amsden, H. H., Concord.
Foster, G. S., Manchester.

NEW JERSEY.

Mabey, J. C., Montclair.

NEW MEXICO.

Montgomery, C. F., Lake Arthur.

NEW YORK.

Albers, F. M., Brooklyn.
Bartholow, Paul, New York City.
Bolt, F. E., East Meredith.
Bonime, Ellis, New York City.
Campaigne, W. N., Troy.
Cheesman, T. M., Garrison.
DuBois, H. G., Camden.
Griffin, Gerald, Albany.
Hopkins, Maria K., Gloversville.
Hoyt, C. W., Rochester.
Lewis, L. C., Belmont.
Lintz, William, Brooklyn.
Olin, J. D., Watertown.
Richards, W. M., New York City.
Stone, C. L., Brooklyn.
Suess, C. L., Lancaster.
Tartaro, Giuseppe, Buffalo.
Weiss, Julius, New York City.
Weiss, L. D., New York City.

NORTH CAROLINA.

Mudgett, W. C., Southern Pines.

NORTH DAKOTA

Nolte, W. C., Dazey.

OHIO.

Benkert, L. C., Columbus.
Bing, Byron, Pomeroy.
Blower, J. G., Glouster.
Bondy E. R., Cleveland.
Bown, S. J., Richwood.
Bubis, J. L., Cleveland.
Burson, A. L., Irwin.
Carpenter, W. B., Lewis Center.
Case, W. L., Mt. Gilead.
Cowden, D. L., Kimbalton.
Cross, J. A., Youngstown.
Diekmeier, H. P., Cincinnati.
Edmiston, W. E., Columbus.
Fisher, W. H., Toledo.
Floyd, M. B., Dayton.
Frye, A. E., Youngstown.
Gaston, R. E., Cincinnati.
Gill, W. C., Cleveland.
Goodwin, E. M., Cleveland.
Green, C. S., Fostoria.
Herrick, W. H., Cleveland.
Hochwalt, G. A., Dayton.
Holmes, J. E., Columbus.
Holston, J. D., Massillon.
Humphrey, C. M., Akron.
Hunter, A. C., West Alexander.
Jenkins, D. J., Broadway.
Jewett, G. E., Elmwood.
Leeper, W. C., McConnelsville.
Marshall, R. J., East Liverpool.
Palmer, C. D., Cincinnati.
Price, H. H., Cambridge.
Rankin, I. C., Akron.
Reycraft, A. J., Fostoria.
Robinson, G. E., Ostrander.
Simpson, D. G., Warren.
Smith, W. A., Cardington.
Stuntz, Harry, Sabina.
Tedesche, L. G., Cincinnati.
Tressel, J. H., Alliance.
Virtue, F. M., Sulphur Springs.
Wagner, L. H., Cleveland.
Weaver, W. B., Miamisburg.
Willey, A. J., Delaware.
Williams, R. E., Alton.
Woltmann, Harro, Mansfield.

OKLAHOMA.

Beitman, C. E., Skedee.
Hayes, R. B., Guymon.
Langston, W. H., Guymon.
Shankle, H. D., Morris.
Walker, Delos, Oklahoma City.
White, F. A., Madill.

PENNSYLVANIA.

Batt, W. R., Harrisburg.
Bloss, R. H., Bethlehem.
Cornelius, Thorne, Penfield.
Dean, H. G., New Castle.
Heiser, W. H., Nanty Glo.
Hill, A. H., Shamokin.
McCullough, W. J. L., Washington.
Morrow, W. G., West Hickory.
Nofer, G. H., Philadelphia.
Trach, D. C., Kresgeville.

PHILIPPINE ISLANDS.

Goff, A. P., Manila.

SOUTH CAROLINA.

Hart, W. L., Yorkville.

SOUTH DAKOTA.

Bright, H. F., White Lake.

TENNESSEE.

Dancy, A. B., Jackson.
Dulaney, R. W., Knoxville.
McRee, W. C., Trenton.
Pistole, W. H., Memphis.
Whitelaw, W. H., Brownsville.

TEXAS.

Osborne, W. C., Monaville.
Paxton, J. H., Elkhart.

UTAH.

Budge, D. C., Logan.
Hampton, R. R., Salt Lake City.

VIRGINIA.

Strother, W. A., Bedford City.

WEST VIRGINIA.

Jarrell, K. M., Clear Creek.
Johnson, G. W., Terry.
Mayer, Joseph, Winfield.
Quimby, A. J., Wheeling.

WISCONSIN.

Chorlog, J. K., Madison.
Farnsworth, A. L., Baraboo.
Hicks, L. N., Burlington.
Palm, C. A., Kenosha.
Poppe, H. B. B., Wautoma.

WYOMING.

Lane, Frances M., Cody.

Medical Education and State Boards of Registration

Meeting of the National Confederation of State Medical Examining and Licensing Boards.

The eighteenth annual meeting of the National Confederation of State Medical Examining and Licensing Boards was held in Chicago, June 1, 1908, ten states being represented. Among other items of business transacted several committees were appointed:

1. A committee on standing of medical colleges, consisting of Dr. George W. Webster, Chicago, chairman; Dr. Henry Beates, Jr., Philadelphia; Dr. James A. Duncan, Toledo, Ohio; Dr. J. W. Bennett, Long Branch, N. J., and Dr. C. A. Tuttle, New Haven, Conn.

2. A legislative committee, consisting of Dr. Edwin B. Harvey, Boston, chairman; Dr. N. R. Coleman, Columbus, Ohio, and Dr. James A. Egan, Springfield, Ill.

3. A committee on examination, consisting of Dr. T. J. Happel, Trenton, Tenn., chairman; Dr. A. Ravogli, Cincinnati, Ohio, and Dr. J. C. Guernsey, Philadelphia.

The selection of officers for the ensuing year resulted in the choice of Dr. T. J. Happel of Tennessee for president; Dr. A. Ravogli of Ohio and Dr. J. C. Guernsey of Pennsylvania, vice-presidents, and Dr. Murray Galt Motter of the District of Columbia, for secretary and treasurer.

The next meeting will be held at Atlantic City, N. J., June 4, 1909.

Connecticut Homeopathic July Report.

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Board, reports the written examination held at New Haven, July 14-15, 1908. Only one candidate appeared for license, a graduate of Boston University, 1906, who passed with a percentage of 91.

Colleges Not Recognized in North Dakota.

By a resolution of the North Dakota State Board of Medical Examiners, adopted July 16, 1908, a medical college which is rated below 50 per cent. by the Council on Medical Education of the American Medical Association will not be recognized and its graduates will not be admitted to examination after that date.

Arizona April Report.

Dr. Ancil Martin, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 6-7, 1908. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 6, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Hahnemann Med. Coll., Chicago	(1895)	82
Medical Coll. of Indiana	(1900)	80
Sioux City Coll. of Med.	(1897)	79
American Med. Coll. of St. Louis	(1893)	77
Jefferson Med. Coll.	(1904)	75.8
Medical Coll. of Virginia	(1904)	81

Illinois May Report.

Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at East St. Louis, May 12-14, 1908. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 167, of whom 136 passed and 29 failed. Two candidates took an incomplete examination. The following colleges were represented:

PASSED. College.	Year Grad.	Total No. Examined.
Chicago Coll. of Med. and Surg.	(1908)	9
Northwestern Univ. Med. School	(1908)	2
Barnes Med. Coll.	(1908)	26
Homeopathic Med. Coll. of Missouri	(1908)	3
St. Louis University	(1907) (42, 1908)	43
Washington University, St. Louis, (1905) (1906) (2, 1907) (38, 1908)		42
St. Louis Coll. of P. and S.	(1905) (10, 1908)	11
FAILED.		
Howard University, Washington	(1901)	1
College of P. and S., Chicago	(1904)	1
Kentucky University	(1902)	1
Barnes Med. Coll.	(1906) (5, 1908)	6
Homeopathic Med. Coll. of Missouri	(1908)	4
St. Louis University	(1908)	1
Washington University, St. Louis	(1906) (4, 1908)	5
St. Louis College of P. and S.	(1908)	10

Ohio June Report.

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the written examination held at Columbus, June 8-10, 1908. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 140, of whom 150 passed and 6 failed. Five reciprocal licenses were granted at a meeting held July 7, 1908. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Rush Med. Coll.	(1904)	88
College of P. and S., Chicago	(1908)	84, 89
University of Maryland	(1902) 84; (1906)	79
Baltimore Med. Coll.	(1907)	82
Johns Hopkins Medical School	(1906)	85, 88
Harvard Medical School	(1900) 82; (1906) 92; (1908)	87
University of Michigan	(1908)	86, 86, 87, 87
University of Michigan, Homeo. Dept.	(1908)	79, 84
Michigan Coll. of Med. and Surg.	(1901)	75
Medical Coll. of Ohio	(1908) 76, 79, 81, 81, 81, 82, 82, 82, 83, 84, 84, 85, 86, 86, 87, 87, 87, 89, 89, 89, 89, 90, 92.	
Miami Med. Coll	(1904) 84; (1908) 77, 79, 79, 82, 84, 84, 87, 88, 90, 90, 91, 92.	
Eclectic Medical Institute, Cincinnati	(1908)	81, 88
Toledo Med Coll.	(1908)	87, 88
Cleveland Coll. of P. and S.	(1907) 82; (1908) 75, 79 82, 83, 84, 84, 85, 85, 85, 85, 86, 87, 87, 89, 91.	
Cleveland Homeo. Med. Coll.	(1908) 82, 85, 86, 91, 93, 93	
Western Reserve University	(1908) 81, 83, 83, 83, 85, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 89, 90, 92, 92.	
Starling Med Coll.	(1906)	75
Starling-Ohio Med. Coll.	(1908) 75, 77, 79, 79, 79, 80, 81, 82, 82, 82, 82, 83, 83, 83, 84, 84, 85, 85, 85, 85, 86, 86, 86, 87, 88, 89, 90, 90, 90,	
Jefferson Med. Coll.	(1907) 83, 84, 84, 88, 90	
University of Pennsylvania	(1907) 83; (1908) 86, 87, 91	
University of Lausanne, Switzerland	(1902)	89
University of Budapest, Hungary	(1886)	82

FAILED.

College of P. and S., Chicago	(1906)	71
Miami Med. Coll	(1908)	71
Eclectic Med. Inst., Cincinnati	(1906) 68; (1908)	72, 72
Meharry Med. Coll	(1908)	65

LICENSED THROUGH RECIPROCITY.

College.	Year grad.	Reciprocity with.
Hospital Coll. of Med., Louisville	(1905)	Nebraska
Detroit Coll. of Med	(1907)	Michigan
Long Island Coll. Hosp	(1907)	New York
Eclectic Med. Inst., Cincinnati	(1893)	Indiana
Western University, Toronto, Canada	(1904)	Illinois

Mississippi May Report.

Dr. S. H. McLean, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, May 12-13, 1908. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 238, of whom 107 passed, including 71 non-graduates, and 131 failed, including 74 non-graduates. The following colleges were represented:

PASSED.

College.	Year. Grad.	Total No. Examined.
Medical Coll. of Alabama	(1908)	1
Louisville Med. Coll	(1894)	1
Tulane University of Louisiana	(1901) (1907) (2, 1908)	4
Mississippi Med. Coll	(1908)	2
College of P. and S., New York	(1907)	1
Leonard School of Medicine	(1908)	3
University of Nashville	(1901) (3, 1907) (4, 1908)	8
Memphis Hosp. Med. Coll	(1903) (10, 1908)	11
College of P. and S., Memphis	(1908)	2
Chattanooga Med. Coll	(1908)	1
University of the South	(1907)	2

FAILED.

Denver and Gross Coll. of Med	(1907)	1
Louisville Med. Coll	(1904) (1907)	2
Flint Med. Coll	(1905) (3, 1908)	4
Tulane University of Louisiana	(1883) (1907)	2
Mississippi Med. Coll	(3, 1907) (7, 1908)	10
St. Louis Coll. of P. and S	(1908)	2
Leonard School of Medicine	(1908)	1
College of P. and S., Memphis	(1907)	1
Memphis Hosp. Med. Coll. (1900) (2, 1903) (1905) (1907) (13, 1908)		18
Meharry Med. Coll	(5, 1907) (4, 1908)	9
University of Nashville (1902) (1903) (1906) (1907) (1908)		5
Chattanooga Med. Coll	(1908)	1
University of the South	(1905)	1

Marriages

A. L. OFFIELD, M.D., San Jose, Cal., to Miss Irene Doyle, of San Francisco, July 16.

GEORGE W. WEST, M.D., to Mrs. Lula G. Bunge, both of Eufaula, Okla., July 14.

CHARLES H. MORROW, M.D., Gloucester, Mass., to Miss M. Luella Tabor, of Boston, July 22.

WILLIAM M. C. BRYAN, M.D., St. Louis, to Miss Helen Louise Kimlin, of Quincy, Ill., June 24.

FREDERICK LYONS APPEL, M.D., to Miss Elizabeth Jane Trafton, both of Muscatine, Iowa, June 1.

GEORGE WILLIAM CLARKE, M.D., to Miss Mabel Whitford Aylesworth, both of Roseville, Ill., July 18.

IRVING L. NETTLETON, M.D., Bridgeport, Conn., to Miss Ida May Young, of Brantford, Ontario, June 17.

WILLIAM THOMAS POWER, M.D., New York, N. Y., to Miss Esther Redmond, at London, England, July 18.

BERNHART L. RIESE, M.D., Chicago, Ill., to Miss Clara Freund, of Vienna, Austria, at Chicago, August 6.

ALBERT FRANKILTON, M.D., Milwaukee, Wis., to Miss Grace Lansing Hamilton, both of Milwaukee, Wis., July 8.

WILLIAM D. BELL, M.D., P. H. and M.-H. Service, Washington, D. C., to Miss Mae McKinnon, of Cambridge, Mass., at Boston, June 11.

FRANZ SOLIER, M.D., Bryan, Ohio, to Miss Louise Harris, of Syracuse, N. Y., at Long Island College Hospital, Brooklyn, N. Y., March 19.

Deaths

Horace Young Evans, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1858; surgeon of the Philadelphia City Troop during the Civil War; at one time a member of the board of managers of the University Hospital; president of the Welsh Society and the Philadelphia County Medical Society; fellow of the College of Physicians; died at Breakwater, Maine, where he had gone to recover from heat exhaustion, July 23, after an illness of four days, aged 63.

Nathaniel Jacob Beachley, M.D. Eclectic Medical Institute, Cincinnati, 1854; Indiana Medical College, Indianapolis, 1877; for many years a member of the Nebraska State Medical Association; assistant surgeon of the Twenty-second Indiana Volunteer Infantry and surgeon of the Sixty-ninth Indiana Volunteer Infantry during the Civil War; died in Lincoln, Neb., July 10, from senile dementia, after an illness of three years, aged 76.

Claiborne Watkins, M.D. Jefferson Medical College, Philadelphia, 1867; a member of the American Medical Association; a Confederate veteran; one of the founders of the Medical Department of the University of Arkansas, Little Rock, and a number of years a member of its faculty and later emeritus professor; died at his home in Little Rock, July 20, from paralysis, after an invalidism of five years, aged 64.

Edward L. Ballou, M.D. University of Buffalo (N. Y.) Medical Department, 1878; a member of the Medical Society of the State of New York; for twenty years health officer of West Seneca; one of the founders of the Gardenville High School, and one time president of the town school board; died at his home in Gardenville, July 25, from heart disease, after a short illness, aged 54.

Jerome H. Crouse, M.D. Rush Medical College, Chicago, 1867; Jefferson Medical College, Philadelphia, 1868; until recently a member of the Indiana State Medical Association; vice-president of the Indiana Rush Medical College Alumni Association; died at his home in Dayton, Ind., June 16, from carcinoma of the stomach, after an illness of six months, aged 65.

George W. Cook, M.D. New York University Medical College, New York City, 1853; a member of the Medical Society of the State of New York and New York Academy of Medicine; for many years a practitioner of Syracuse; died at the Hospital of the Good Shepherd in that city, June 22, after an illness of two years, aged 80.

Bolling A. Pope, M.D. College of Physicians and Surgeons in the City of New York, 1890; a member of the American Medical Association, and one of the most prominent ophthalmologists of New Orleans; died at his home in that city, July 19, from cirrhosis of the liver, after a short illness, aged 42.

William E. Best, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1860; formerly of North Branch, Mich.; surgeon in the volunteer service during the Civil War; died suddenly in his apartments in Cottage Grove, Ore., July 21, from cerebral hemorrhage, aged 68.

William T. Williamson, M.D. American Medical College (Eclectic), St. Louis, 1879; a member of the Indiana State Medical Association; died at his home in Fort Branch, Ind., July 22, from pyemia, following a carbuncle of the neck, after an illness of about three weeks, aged 64.

George E. West, M.D. Long Island College Hospital, Brooklyn, 1885; of Rock Island, Ill.; chief of the record department and actuary of the Modern Woodmen of America; died in St. Anthony's Hospital, Rock Island, Ill., July 21, a week after an operation for appendicitis, aged 46.

John McEwen Wetmore, M.D. College of Physicians and Surgeons in the City of New York, 1855; consulting surgeon to the Laura Franklin Free Hospital for Children, New York City; died suddenly from heart disease, at his home in New York City, July 21, aged 76.

John Walker Wilson, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1905; a member of the American Medical Association; died at his home in Glory, Texas, February 22, from pneumonia, after an illness of three weeks, aged 34.

Guy L. Dodge, M.D. John A. Creighton Medical College, Omaha, 1902; of Lost Cabin, Wyo; was instantly killed about fourteen miles north of that place, June 28, by the accidental discharge of his gun, while on a hunting trip, aged 28.

George Albert Ordway, M.D. Hahnemann Medical College and Hospital of Chicago, 1893; Dartmouth Medical School, Hanover, N. H., 1895; of Cochituate, Mass.; a Civil War

veteran; died in the South Framingham (Mass.) Hospital, July 22, aged 64.

Morgan Reese Banks, M.D. Western Reserve University Medical College, Cleveland, Ohio, 1848; said to have been the oldest practitioner of Pennsylvania; died at his home in Livermore, June 19, from senility, after an illness of two months, aged 95.

David W. Mathews, M.D. Rush Medical College, Chicago, 1884; formerly of Savanna, Ill.; surgeon of the Colorado Fuel and Iron Company at Walsenburg, Colo.; died at the Minnequa Hospital, Pueblo, Colo., July 22, from typhoid fever, aged 47.

Albert Heilbrunn, M.D. University of Berlin, Germany, 1857; a specialist on diseases of the nervous system of Philadelphia; died at his cottage in Atlantic City, N. J., July 17, from cerebral hemorrhage, after an illness of six days, aged 76.

Frank Savoy, Jr., M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1893; a member of the Louisiana State Medical Society; died at his home near Church Point, La., July 18, after a prolonged illness, aged 38.

Jennie C. E. Hayner, M.D. Northwestern University Woman's Medical School, Chicago, 1880; a member of the Illinois State Medical Society, and for many years a practitioner of Chicago; died at her home in Chicago, July 25.

Edward Vincent Brown, M.D. New York University Medical College, New York City, 1863; a homeopathic practitioner of North Tarrytown, N. Y.; died at the home of his son in Portland, Ore., July 26, from gastritis, aged 71.

Augustus Wright, M.D. Kentucky School of Medicine, Louisville, 1890; of Elkin, Ky.; one of the oldest practitioners of Clark County; died at Tate Springs, Tenn., July 24, from pneumonia, after a short illness, aged 74.

William G. Cole, M.D. Hahnemann Medical College and Hospital of Chicago, 1891; associate professor of materia medica in Hahnemann Medical College, San Francisco; died recently at his home in Guerneville, Cal., aged 41.

Carleton P. Flint, M.D. Medical School of Harvard University, Boston, 1896; of New York City; died in Seabright, N. J., July 25, from injuries received by being run down by an automobile, the night before.

William Westford Grubbs, M.D. Louisville (Ky.) Medical College, 1890; a member of the Medical Association of the State of Alabama, and formerly mayor of Enterprise; died at his home in that place July 19.

Charles Winter Trader, M.D. University of Maryland School of Medicine, Baltimore, 1878; formerly of Somerset County, Maryland, and Hastings, Okla.; died at Cuervo, N. M., July 15, from heart disease, aged 51.

Frederick East, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1889; a member of the Medical Society of the State of New York; died at his home in Rochester, July 22, aged 54.

Augustus Herman Wurtele, M.D. Jefferson Medical College, Philadelphia, 1893; an ophthalmologist of Philadelphia; died suddenly at his home in that city, July 21, from cerebral hemorrhage, aged 38.

Walter C. Baker, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1904; of Philadelphia; died in St. Luke's Hospital in that city, July 27, from cerebral hemorrhage, after a long illness.

Andrew O'Malley, M.D. College of Physicians and Surgeons in the City of New York, 1891; died at his home in San Antonio, Texas, from kidney disease, July 20, after a long illness, aged 43.

James Rigg, M.D. Drake University College of Medicine, Des Moines, Iowa, 1888; first postmaster of Oacoma, S. D., and formerly a practitioner of Plankinton, S. D.; died recently in Chicago.

Martin K. Lott, M.D. University of Louisville (Ky.) Medical Department, 1875; died recently at his home in Cameron, Texas, and was buried at his old home in Belton, Texas, July 21.

Joseph M. Hicks. (Years of Practice, Ind.); for sixty-eight years an eclectic practitioner of the state; died at his home in Indianapolis, July 21, from influenza and senile debility, aged 81.

Frank H. Marey, M.D. Ohio Medical College, Medical Department University of Cincinnati, 1892; formerly of Bearden, Tenn.; died at his home in Albuquerque, N. M., July 22, aged 38.

David M. Shoemaker, M.D. Eclectic Medical Institute, Cincinnati, 1881; formerly of Brookville and Muncie, Ind.; died suddenly at the home of his daughter near Chicago, July 19, aged 63.

Eugene L. F. E. Grauer, M.D. Homeopathic Medical College of Missouri, St. Louis, 1907; resident physician at the St. Louis Children's Hospital; died in that city, July 24, aged 23.

Paul S. Redfield, M.D. New York University Medical College, New York City, 1866; died at his home in Providence, R. I., July 19, from nephritis, after a long illness, aged 70.

James Osborn Furlow, M.D. University of Louisville (Ky.) Medical Department, 1875; of Montgomery, Texas; died in Shelbyville, Texas, from pneumonia, February 12, aged 54.

J. Jephtha Edwards, M.D. Physio-Medical College of Indiana, Indianapolis, 1897; formerly of Wailesboro, Ind.; died at his home in Mooney, Jackson County, Ind., July 19, aged 40.

Harvey C. Chapman. (Years of practice, Ill.); a surgeon during the Mexican War; formerly of Montgomery County, Illinois; died at his home in Trinidad, Colo., July 6.

P. B. Chandler, M.D. Yale Medical School, New Haven, Conn., 1908; of Marengo, Iowa; was killed in a collision between two cars at Allen Junction, Minn., July 20.

Gibson W. Bower, M.D. Jefferson Medical College, Philadelphia, 1867; died at his home in Myerstown, Pa., July 21, from dropsy, after an illness of two months, aged 63.

James Paul, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1852; died at his home in Chestnut Hill, Philadelphia, July 24, after a long illness.

Hiram P. Merville, M.D. University of Buffalo (N. Y.) Medical Department, 1867; a veteran of the Civil War; died at his home in Milwaukee, July 27, aged 68.

C. A. Tobie, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1860; died at his home in Colesburg, Iowa, March 21, aged 75.

Wiley C. Smith, M.D. University of Nashville, Medical Department, 1856; of Elgin, Texas; died at the home of his son in South Elgin, July 20, aged 77.

Robert E. Bass, M.D. Jefferson Medical College, Philadelphia, 1855; died at his home, near Rice Depot, Va., July 20, aged 76.

John Austin Thompson, M.D. Rush Medical College, Chicago, 1870; died at his home in Letts, Iowa, March 24, aged 70.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

IN FAVOR OF A GREAT NATIONAL DEPARTMENT OF PUBLIC HEALTH.

By J. N. McCormack, M.D.
BOWLING GREEN, KY.

Important actions and results in medical affairs, almost uniformly favorable, have followed each other with such rapid succession since the reorganization movement began that it is difficult for most of us to realize that it has all occupied less than eight years of time. The phenomenal territorial extension, and the growth, in both membership and power, of the county societies, the insistent and practically successful demand for pure drugs and clean medical journals, the much needed and far-reaching reform in medical education, licensure and reciprocity, and the defeat of the multi-millionaire insurance combine, have in some measure indicated what may reasonably be hoped for when the profession becomes as thoroughly organized and united, and as wisely led, and the public becomes as appreciative, as will one day be possible. Other more recent happenings give no less ground for encouragement.

At the recent Chicago session of the Association, through resolutions in which the issue was squarely raised, the House of Delegates was called on to decide officially and finally whether it would favor such an extension of the powers and duties of the United States Public Health and Marine-Hospital Service as would gradually develop it into a department of public health, in addition to the other important duties for which it was created, or would adhere to its original and often expressed determination, in which it is joined by the American

Public Health Association, the National Confederation of State Boards of Health and the Committee of One Hundred of the American Association for the Advancement of Science, to urge that a great new national department of public health should be established at Washington on such broad lines as would embrace or utilize the Marine-Hospital Service, the pure food and census bureaus, the Bureau of Animal Industry and such other scientific laboratories and activities operating under other heads as would properly belong to such a department, and create such others for research work and collective investigation as would at once place our government on an equal footing with the other great nations of the earth in this important field of labor.

After full hearing before the Reference Committee on Legislation and Political Action, and after conceding to the Public Health and Marine-Hospital Service full credit for all it had done in combating yellow fever in the south, plague in California and its efficient inspection of immigrants, resolutions asking Congress to establish such a new department as is above indicated were unanimously reported by the committee and adopted by the House of Delegates without a dissenting voice. In furtherance of this, "the Committee on Legislation was requested to arrange for such conferences with the Committee of One Hundred, the surgeons-general of the Army, Navy and the Public Health and Marine-Hospital Service, the bureaus above named, and others, or their representatives, jointly or severally, that may be deemed best, with a view to attempting to secure such a coordination and cooperation of all these forces as will further the creation of such a department."

A resolution was also adopted asking "the different political parties to make formal declaration in their respective platforms soon to be submitted to the people" as to what their policies would be in regard to such a department. Although the time for action was short, every possible influence was at once brought to bear on the delegates of the conventions of both of the great parties. My information is that Mr. Taft was entirely favorable, but the plank in the Republican platform was far from satisfactory, although even the recognition of the work was a substantial gain. Mr. Bryan's endorsement was cordial, the correspondence with him, elaborating the reasons for the request, was in the hands of every delegate before the convention assembled, many leading members of the platform committee took an active interest in the matter, and the plank was inserted almost exactly as I wrote it, with the preamble omitted.

A special resolution was also adopted by the House of Delegates by which I was "directed to represent the Committee on Medical Legislation at its request during the second session of the Sixtieth Congress." This will be worth while only on condition that county societies everywhere can be induced to bring their influence to bear at once on the candidates for Congress of both political parties in every district. In a large per cent. of these districts, as is true of nearly every one of them in Kentucky, the vote is sufficiently close so that a properly organized profession can control the result, and the time has come for this influence to be exercised. It will be the more powerful because used in direct conflict with every selfish interest we might have. No one is fit to represent an intelligent constituency in Congress, or to hold any other public office, who has not sense enough to understand the importance of what we are trying to do, and that the health and lives of women and children are at least as important as that of hogs and sheep, and we should be far more interested in this than any mere party question, or the success of any individual candidate. The average politician has a profound respect for the organized vocations which can control votes, in which ours should be second to no other, and we owe it as a sacred duty to humanity, quietly and with the dignity befitting such a calling and work, to exercise this power to its full extent.

In this connection there is another matter which it is important that county societies should understand, and about which candidates for Congress should be fully advised. A resolution is pending before Congress authorizing the President to investigate and readjust the bureaus in all of the departments, with the view to more coherent and effective service. It is thought by some that with a proper grouping and classification of all of the existing scientific bureaus making investigations and performing duties having a kinship to what we have in mind, such a department or subdepartments as we desire might be created with little if any additional legislation or expense.

Arrangements are being made for the conference of heads of departments and bureaus indicated above, and the result of this will be given to the profession before the meeting of Congress. In the meantime it is urged that each county society in the United States hold a meeting as early as practicable and appoint active but judicious committees, one for each of the great political parties, to secure an expression of opinion from each of the candidates which may be read to the society in advance of the election, and that a copy of such resolution and the names and addresses of the chairman of each committee and of the candidates for Congree be forwarded to me at Bowling Green, Ky. I will know what can be accomplished at Washington just as soon as I can learn the interest county societies are taking in this work.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Twelfth Month.

DISEASES OF THE EYE.

First Weekly Meeting.

Anatomy of Eye and Adjacent Structures.
Physiology of Vision.
Diseases of Eyelid and Lachrymal Apparatus.

Second Weekly Meeting.

Catarrhal, Follicular and Vernal Conjunctivitis.
Purulent Conjunctivitis (Gonorrheal and Non-Gonorrheal).
Trachoma, Pterygium.

Third Weekly Meeting.

Suppurative Keratitis.
Non-suppurative Keratitis.
Diseases of Iris.

Fourth Weekly Meeting.

The Eye During and After the Exanthemata.
The Diagnosis of Cataract.
The Diagnosis of Glaucoma.
Foreign Bodies in Eye.

Monthly Meeting.

Such Intraocular Diseases as Are Met with in the Treatment of Syphilis, Rheumatism, Nephritis, Tuberculosis and Diseases of the Brain and Spinal Cord.
Extraocular Lesions, Symptoms and Effects from Eruptive Diseases and Adjacent Skin Affections.
Diagnosis and Treatment of Iritis.

FIRST WEEKLY MEETING.

Anatomy of Eye and Adjacent Structures.

The Orbit: Bones in both orbits. Four walls, base, apex, angles. Important foramina.
Contents of Orbit: Blood vessels, nerves, muscles.
The Eye: Shape, size, axes. Capsule of Tenon.
Tunics: (a) Selerotic and cornea, (b) choroid, iris and ciliary processes, (c) retina.
Refracting Media: (a) Aqueous humor, (b) vitreous humor, (c) crystalline lens and capsule.
Appendanges: Eyebrows. Eyelids, structure. Conjunctiva, portions, folds, structure. Lachrymal apparatus, gland, canals, sac, nasal duct.

Physiology of Vision.

Function of media, iris, sclera, choroid and retina.
Refraction: Formation of image, inversion. Accommodation. Defects in focus, hypermetropia, myopia and astigmatism. Effect of age on accommodation, presbyopia.

Monocular and Binocular Vision: Automatic action from intensity of stimulus. Fusion and overlapping of images in binocular vision. Projection from binocular vision.
Field of Vision: Variation for colors and in diseases.
Color Perception: Theories of color perception (color photography). Defective color perception (color blindness.

Diseases of Eyelid and Lachrymal Apparatus.

Eyelid.
Blepharitis: Symptoms, course, treatment.
Stye, chalazion.
Ptosis: Causes, treatment.
Blepharospasm.
Trichiasis, distichiasis.
Entropion, ectropion; symptoms and treatment of each.
Lachrymal Apparatus.
Dacryocystitis, catarrhal and suppurative: abscess of lachrymal sac.
Stricture of nasal duct.

SECOND WEEKLY MEETING.

Diseases of Conjunctiva.

Conjunctivitis.
Catarrhal.—Acute: Causes, association with exanthemata and other diseases. Treatment.
Chronic: Etiology, symptoms, treatment.
Follicular.—Granular: Incidence, diagnosis, differentiation from trachoma.
Vernal: Etiology, symptoms.
Purulent Gonorrheal Ophthalmia.
In the Adult: Symptoms, prophylaxis, treatment.
Ophthalmia Neonatorum: Prophylaxis, diagnosis, treatment.
Non-gonorrheal Ophthalmia: Bacteriology.
Phlyctenular: Symptoms, diagnosis, treatment.
Trachoma. Pterygium.
Trachoma: Etiology, forms (a) papillary, (b) granular, (c) mixed, diagnosis, treatment.
Pterygium: Pathology, course, treatment.

Society Proceedings

COMING MEETINGS.

American Public Health Association, Winnipeg, Can., Aug. 25-28.
American Acad. of Ophthal. and Oto-Laryng., Cleveland, Aug. 27-29.
Wyoming State Medical Society, Sheridan, Aug. 28.
New Mexico Medical Society, Albuquerque, Sept. 2-3.
Washington State Medical Association, Walla Walla, Sept. 2-4.
Medical Society of the Missouri Valley, Council Bluffs, Sept 3-4.
Colorado State Medical Society, Denver, Sept. 8-10.
Med. Soc. of the State of Pennsylvania, Cambridge Spgs., Sept. 14-17.

WISCONSIN STATE MEDICAL SOCIETY.

Sixty-second Annual Meeting, held at Milwaukee, June 24-26, 1908.

The President, DR. W. E. GROUND, Superior, in the Chair.

Address of Welcome.

The address of welcome was delivered by Hon. Clinton G. Price, assistant city attorney of Milwaukee, representing the mayor. Dr. W. E. Ground, president, responded.

The Ideal in Medicine.

DR. WILLIAM E. GROUND, Superior, in his presidential address, pointed out that the aim of the present practitioner was to prevent disease by teaching his patients proper modes of living rather than cure of disease after it was acquired.

Etiology, Pathology and Treatment of Acute Chorea.

DR. G. H. FELLMAN, Milwaukee, referred to the evidence in support of the rheumatic theory and stated that it had become so strong that the majority of writers now claimed that chorea was an infectious disease of rheumatic origin. In treatment he recommended rest in bed, proper hygienic and hydrotherapeutic measures, and, in severe cases, a trained nurse. He advised Fowler's solution, beginning with small doses and increasing it rapidly, and watching the patient closely for evidence of arsenical poisoning; also aspirin, belladonna and bromids for sedative effects, and strychnin for mental depression.

DISCUSSION.

DR. L. BOORSE, Milwaukee, stated that there was no unanimity of opinion as regards the specific nature of the infectious agent in chorea, and noted the fact that children who developed chorea presented evidence of previous physical deterioration and excessive nervous irritability; that the frequent occurrence of chorea in rheumatism precluded accidental coincidence, but that the evidence was insufficient to conclude that rheumatism was the exciting cause in all cases.

DR. A. W. MYERS, Milwaukee, made the point that about 50 per cent. of all chorea patients ultimately presented signs of chronic valvular heart disease. Chorea should be looked on as an infectious process. Drugs were of secondary importance; rest, diet and hygiene, both physical and mental, were of primary importance. The period of rest in severe cases might have to be prolonged many weeks, and in extremely severe cases absolute isolation might be needed. In cases with a definite rheumatic history he advised trying the effect of the salicylates for a few days.

DR. A. J. BURGESS, Milwaukee, stated that in his experience the disease is infectious. He said that drugs are useless, and recommended rest for the heart. He disapproved of salicylates, as tending to irritate the stomach and offset the effect of diet. He noted the fact that dogs in large number have chorea, and recommended the study of the disease in them.

DR. D. W. HARRINGTON, Milwaukee, believed that chorea was a disease of the nervous system; not exactly an infectious disease, but the result of a variety of infections, among which he enumerated rheumatism and various fevers, such as scarlet and puerperal fever. He recommended a diet containing vegetable and fruit acids, to increase the alkalinity of the system, and advised salicylate of sodium in cases in which there was a rheumatic condition, not so much for the salicylic acid as for the sodium that would be carried into the body.

DR. T. J. REDLINGS, Marinette, deprecated the use of the expression "use a careful diet" as not sufficiently definite. A child of a given weight required a given amount of food relatively. It was easy for the physician to familiarize himself with the food value of the different foods, and say specifically the child should have so many ounces of milk, so many ounces of meat, so much sugar, etc. The infant required a larger percentage of protein. All the text-books used the expression "be careful with your diet," and emphasized the fact that the day had passed when physicians were justified in using it: they must state definitely what the infant should have on the basis of its body and weight.

DR. G. H. FELLMAN stated it was just as much proved that chorea was due to rheumatism as that scarlet fever might be due to a certain diplococcus. He endorsed Dr. Redlings' statements as to scientific feeding of infants, but said that individuals vary, and even if fed according to weight could not be nourished by that diet. For that reason the general direction given "be careful of your diet" is more applicable than to state eat this or eat that.

After-Care of Obstetrical Cases in Country Practice.

DR. M. V. DEWIRE, Sharon, indicated the unfavorable conditions as compared to city practice: no hospitals; patients careless about calling physicians until about time of labor; analysis of urine made only occasionally; usually no measurement of pelvis; conditions in some places being dirty; nurses few, and in many cases unfit. Hemorrhage was the cause of most concern, and he outlined in some detail the approved measures for its control and the after-treatment of these patients.

DISCUSSION.

DR. J. H. SURE, Milwaukee, disapproved of manipulating uterus or promoting contraction immediately after birth, involution being a physiologic process and requiring some time. He thought it best to leave the placenta so long as there was no bleeding; if there was bleeding the placenta had probably separated and was lying free in the uterine cavity, and in such case it was well to express it, but if expressed before

being separated, fragments were liable to be left behind and infection to follow.

DR. G. A. HIPKE, Milwaukee, discussed the treatment of postpartum hemorrhage when the Credé method of placenta expulsion was wrongly used after the placenta had been expelled, making no allowance for the natural tendency of the uterus to relax and contract, and preventing thrombus from forming; and also the fact that the case should remain an obstetrical case until involution of the uterus and its appendages takes place, and they are in their normal position.

DR. M. V. DEWIRE stated, that notwithstanding the objection of Dr. Sure, he had always made it a rule to examine the cervix immediately following birth, and that when laceration was discovered it was repaired immediately following labor. He said that there was no way of determining whether there had been injury except by examination, and that if examination were not made the woman might become an invalid. At any rate, examination should be made within three months.

Phases of the Practice of Medicine of To-Day.

DR. WALTER S. LINCOLN, Dodgeville, stated that the practice of medicine had fallen into disrepute some years ago, and that the condition still prevailed to some extent to-day. He cited among the causes the wonderful advances of surgery, following the discovery of antisepsis and asepsis, thus eclipsing the purely medical side; the commercial spirit of the age, the medical nihilism. He also mentioned the attitude of the surgeon toward the physician and the spirit of jealousy in the profession itself. As remedies, he proposed the cultivation of a more tolerant spirit toward each other, particularly between specialist and general practitioner, the utilization of new ideas if there is good in them, and the cultivation of a high professional ideal.

DISCUSSION.

DR. J. B. MEARS, Fond du Lac, stated that the disease affecting the practice of medicine was inanition, and that he did not think the profession had sunk so low in the estimation of the world as the paper indicated; that he did not believe it had ever had a better position before the world than now; that the wonderful advancement of surgery had opened up the pathway for young men in that field; that medicine had won as many laurels as surgery; that he had little sympathy with those who are lecturing on the withering blight of the "commercial spirit," and recommended closer association of physicians through county and state societies for mutual benefit.

DR. J. R. BARNETT, Neenah, took a middle ground between the two preceding speakers, claiming the one to be pessimistic and the other optimistic, and that the evolution of medicine had been such that to-day medicine was coming into her own.

Exceptions to Rules in Administration of Certain Drugs.

DR. W. G. KEMPER, Manitowoc, asserted that in some cases it was necessary to disregard generally accepted rules in applying drugs. Confining himself to opiates and ergot, he gave illustrations where such drugs were administered apparently in defiance of the generally accepted authorities. He mentioned two cases of epileptic convulsions in children, in which morphin was administered with good results, and also called attention to the use of ergot in confinement cases. He believed that the judicious use of ergot would be of great benefit to mankind, and laid stress on the proper administration of drugs in exceptional cases.

DISCUSSION.

DR. J. R. BARNETT, Neenah, said that the sedative dose depends on the degree of severity and the persistence of the convulsive trouble; and that while he thought the treatment of Dr. Kemper as applied was conservative, he also thought it was fortunate that his opportunities had been limited to two cases. He had found ergot disappointing, sometimes causing tonic contractions, and sometimes apparent contractions of the circular fibers instead of the longtitudinal fibers.

DR. C. S. SHELDON, Madison, deprecated the use of any cut and dried plan in the use of remedies, maintaining that the physician should adopt the means to the end, and adjust his treatment to the condition as he finds it.

DR. M. L. HOWISON, Menominee, stated that he had used ergot considerably, more especially in early practice, and did not think there was a great deal of danger. He stated that the symptoms preceding hemorrhage will appear in almost every case to warn the physician, without the necessity of keeping the hand over the uterus. He would proceed cautiously in the use of ergot.

Administration of Oxygen for Postanesthetic Nausea and Vomiting.

DR. R. P. PEAIRS, Milwaukee, stated that nausea and vomiting occurred more frequently after ether than chloroform, but of a more severe type following chloroform. In 100 cases in which ether was used by the drop method, 64 per cent. of the patients suffered from nausea, vomiting in about the same proportion, but in only 30 per cent. did it occur more than three or four times. The anesthetic itself was the most frequent cause, but the reason for this was not clear. Eighty-four per cent. of women suffered from nausea and vomiting when ether was used. The usual methods of treatment, such as cocain, morphin, etc., are ineffective. He considered the use of oxygen as most beneficial for the relief of this condition, as it was harmless and easily given.

DISCUSSION.

DR. W. T. NICHOLS, Milwaukee, strongly endorsed the use of oxygen for the relief of postanesthetic nausea and vomiting. He advised careful technic in the preparation of the patient and administration of the anesthetic. The patient should be in as normal condition as circumstances will allow, and the system should contain an abundance of water.

DR. A. J. PULS, Milwaukee, recommended the inhalation of pure oxygen gas to prevent nausea and vomiting, though stating that while he had failed in three cases, two being complete and one partial, he endorsed the plan of giving plenty of liquid days before surgical interference.

DR. C. M. ECHOLS, Milwaukee, expressed the opinion that the list of cases was too small to form the basis of anything more than a tentative conclusion.

DR. J. M. BEFFEL, Milwaukee, called attention to two cases, in the first of which the patient had had two anesthetics before, with bad results, and was apprehensive as to a third. The anesthetic was administered by Dr. Peairs, and the result was gratifying; the other case was that of a patient in bad physical condition, in which the anesthetic was nitrous oxid, followed by oxygen with correspondingly good results.

DR. PEAIRS stated that the nitrous oxid and oxygen mixture was the ideal anesthetic, but was objectionable on account of the expense.

Carcinoma of the Breast.

DR. C. W. OVIATT, Oshkosh, emphasized the importance of an early diagnosis, followed by surgical intervention, and stated that in at least 50 per cent. of cases in the early stage the disease was curable, while in the late stage it was never curable. In the examination the chest should be entirely exposed, the axilla freely palpated, and auscultation practiced, to determine if the disease was advanced. In the hospital work the neoplasm could be subjected to immediate microscopic examination by the freezing method. Physicians should remember that about 80 per cent. of all neoplasms of the breast were primarily malignant, or were destined to become so; pain was not necessarily present in early stages; a retracted nipple was a late symptom. In cancer of the breast untreated and allowed to take its natural course, a fatal result might be expected within three years. In treatment, the knife offered the only remedy worthy of consideration.

DISCUSSION.

DR. J. M. DODD, Ashland, recommended educating the people to have growths removed as soon as discovered.

The Physiology of the Digestive System.

DR. WALTER C. CANNON, Boston, Mass., delivered the annual address in medicine. The address was illustrated with stereopticon views, and the address was confined to studies of the mechanical factors in digestion, the method of study employed being mainly the use of the *x*-ray on animals. The

animals were given food mixed with a small amount of subnitrate of bismuth, thereby making it possible to see the movements of the walls of the canal and movements of the food in the stomach and in the small and large intestines with the ray. Dr. Cannon stated in conclusion that the experiments would seem to indicate the necessity of mental tranquillity during digestion, and that in the animals experimented on excitement caused the peristaltic waves to disappear.

Routes of Invasion in Tuberculosis.

DR. M. P. RAVENEL, Madison, confined his address to three different routes: heredity, infections through the alimentary tract, contact, such as kissing or soiled hands, the latter playing a small part in the dissemination of the disease. He stated that hereditary tuberculosis was rare in the civilized world, and gave statistics of orphan asylums, where the children are largely the offspring of tuberculous parents, showing that the disease was almost unknown there. He concluded that inhalation was the chief method of contagion in tuberculosis, but not the only cause, and that in children about 25 per cent. of the cases were due to injection rather than inhalation. He recommended the use of milk from tuberculin-tested cows as a preventive, and general legislation throughout the country requiring milk furnished for public consumption to be furnished only from such tested cattle.

Early Diagnosis of Tuberculosis.

DR. THOMAS H. HAY, Stevens Point, laid emphasis on the fact that early diagnosis is of supreme importance in this disease. He stated that there were from 85 to 90 per cent. of good results in incipient cases, as compared with 12 per cent. in advanced cases. There were men in the profession who still believed this to be an incurable disease, which is not the case. When the stage of the disease is reached in which sputum examination revealed tubercle bacilli, the case was no longer an incipient one, dependence on the presence of bacilli not being a safe guide. When a patient showed loss of weight and strength, had feeling of indisposition in the afternoon, and possibly night sweats, slight cough, slight expectoration, catarrhal history, loss of appetite, increased pulse and rise in temperature of from three-fourths to one degree in the afternoon, careful and immediate examination is indicated. He gave in detail the usual methods.

Rural Tuberculosis.

DR. FRED JOHNSON, North Freedom, stated that too little attention had been paid to the ravages of the white plague in the rural districts. Conditions such as double windows, small stuffy bedrooms, trees and window shades shutting out all light; houses banked up with manure and close proximity of houses to barns, were all conducive to spread of infection. He referred to milk as a fine culture medium, and to the care that should be exercised in its handling, including testing of cattle for tuberculosis.

Tuberculosis.

DR. N. L. HOWISON, Menominee, advised national laws prohibiting the marriage of tuberculous persons. The ideal plan for treatment was the sanatorium or private hospital. Patients should be informed at the beginning that they had consumption, and that their recovery depended largely on themselves. He recommended fresh air, sunshine, proper food, exercise, and at least nine hours of sleep. Exercise causing sudden rise of temperature should be discontinued; drugs play a subordinate part; he has found stimulants always beneficial, if given in diluted form. He attributed growth of tuberculosis to methods of living in modern civilization. People should not be afraid to come in contact with tuberculous individuals, but should instruct them along lines by which they may protect themselves and others. The disease should be reached in its incipiency through early diagnosis and examinations, with patient stripped to the waist, carefully made by the stethoscope and by percussion and examination of sputum and careful record of temperature. Sputum can be examined free at all times in the State Hygienic Laboratory at Madison, and in addition to the examination, when sputum is sent in, a pamphlet will be returned with a report of the examination, to the physician, which pamphlet can be handed to the patient, and will outline to the patient the principles of care that he should exercise.

Discussion on Tuberculosis.

DR. H. A. DEARHOLT, Madison, raised the point that the doctors should enter politics and get into communication with the various health departments and take prominent part in the crusade against tuberculosis.

DR. C. H. STODDARD, Milwaukee, illustrated by the use of diagrams the method of Kroenig, a method not mentioned in any text-book on physical diagnosis or practice. The method consisted of percussion with the hammer or pleximeter over the apices of the lung, using a dermographic pencil, and afterward making comparison.

DR. J. M. BEFFEL, Milwaukee, stated that in view of the enormous death rate from tuberculosis, he considered that the efforts of the profession should be directed largely toward its prevention rather than its cure. He gave figures showing the death rate, and stated that from a commercial aspect it was costing the United States $370,000,000 yearly. Great work had been done in the direction of prevention and cure of this disease in Milwaukee, and it must go on through the state.

DR. RAVENEL stated that he had seen only one case in which liquor was indicated, and thought that liquor in any form was bad in the cure of tuberculosis. He endorsed the practice of stripping the patient to the waist on examination. He did not believe in giving the patient a hopeless diagnosis, as mental therapeutics in this disease was very valuable, and every encouragement should be held out; but the truth should always be told, because rigid discipline is necessary for the cure. He reiterated his belief that milk used for human consumption should be from tuberculin-tested cows.

DR. N. L. HOWISON, Menominee, replying to Dr. Ravenel, stated that there was great variance of opinion regarding the use of stimulants in the treatment of consumption; that he did not use strong stimulation, but had secured good results by the use of mild stimulants.

(To be continued.)

AMERICAN ORTHOPEDIC ASSOCIATION.

Twenty-second Annual Meeting, held in Chicago, June 4-6, 1908.

(Continued from page 431.)

Paralysis of the Shoulder, Especially Its Mechanical Treatment.

DR. DAVID SILVER, Pittsburg, first considered the relative frequency of paralysis of the upper extremity, and the reason for the regression of the paralysis in the arm and for the tendency to its more frequent persistence in the deltoid. He reiterated the principle of relaxation in the treatment of paralyzed muscles, and described its application to the shoulder by means of a simple and comfortable appliance. Cases treated by this method were reported, and photographs exhibited.

Presentation of Apparatus.

DR. PHIL HOFFMAN exhibited a modified osteoclast; and DR. COMPTON RIELY, a new osteoclast, a safety paralytic knee-brace lock, a combination Club Foot shoe and brace, and a Club Foot brace. MR. LITTLE exhibited drawings of his osteoclast, which he had not brought with him.

DISCUSSION.

DR. J. RIDLON, Chicago, criticised all three osteoclasts and said that he preferred the Gratin.

DR. E. RYERSON, Chicago, said that with the lever osteoclast one is liable to keep on pressing after the leg has been broken and to push the fragment through the skin.

DR. WILSON was pleased with the Little osteoclast, which he considered the simplest, most efficient and easiest to manage of any he knows of. He would not use it for adult bones, however.

DR. HOFFMAN said that he has used his instrument for five years. He said that the bearings of his osteoclast are as strong as those of the Gratin, and that it will break bones as easily. It is the other parts that are lighter, thus making

the instrument portable. It is much simpler than the Gratin, and can be taken apart and cleaned. It is also cheaper.

DR. RIELY said that the lever of his osteoclast could be released instantly. While it might be a little trouble to place the leg in the rings, there is no danger of its being caught there.

Operative Treatment of Intracapsular Fracture of the Hip-Joint—Operative Treatment for Paralytic Eversion of the Foot.

DR. G. G. DAVIS, Philadelphia, reported three cases in which, by open incision, the edges of an ununited fracture were freshened, and then the limb was put up, in the abducted position, in plaster-of-Paris. The result in both the first two cases was good. The third patient could walk without support on her discharge from the hospital, but subsequently had an attack of rheumatism in the leg operated on, requiring her to use crutches.

DISCUSSION.

DR. WILSON said that he reported a case in which a nail had gone further than he intended, and had penetrated the acetabulum, without causing any alarming conditions. He thought that this result must have been the reason for his success in other cases. In the case reported, the patient was so pleased with the result that she refused to have the nail removed. He had not intended the nail to be so long, but had miscalculated, not having allowed for the pushing of the separated fragments together in the process of driving home the nail.

DR. STEWART L. MCCURDY, Pittsburg, said that if the nail is within the capsule, and if the force used has been considerable, the ligamentum teres will be injured and its nutrition destroyed, the nail remaining in the joint as a foreign body. He has removed the nail in three cases in which this had happened and caused great pain. Each patient made a good recovery, and goes around on crutches.

DR. PECKHAM mentioned four cases in which he performed this operation. He wondered whether it would not be a good thing to make the nail intentionally long enough to go into the acetabulum.

DR. WILLARD described a screw invented by one of his assistants. The screw part is made of ivory, and the head of brass. The head is removed, and the ivory subsequently becomes a part of the bone.

DR. DAVIS said that if in Dr. Peckham's cases he had got good union, even though with some shortening, he should be satisfied.

Surgery of the Motor Peripheral Nerves.

DR. ALFRED S. TAYLOR, New York, said that the application of surgery to peripheral nerves is based on the power of nerves to regenerate, the power of one nerve to assume vicariously the function of another nerve of the same type, and the persistence of muscle for the regenerated nerve to act on. The time that has elapsed since the onset of paralysis is of variable importance, while the condition of the paralyzed muscles is of prime importance. Accessory factors influencing the results are contractures of muscles and ligaments and undergrowth and deformity of bones, especially at the joint ends. He described the technique in end-to-end suture (nerve-crossing, if necessary), various methods of lateral anastomosis, and bridging and transplantation giving the after treatment and results of each.

DISCUSSION.

DR. E. RYERSON, Chicago, does not think Spitzy's method of nerve transplantation rational, and he considers Murphy's procedure dangerous. He does not feel that one is justified in taking off healthy nerves to attach to a diseased one. He suggested the use of the dog's artery, instead of catgut, in the brachial plexus cases.

DR. DAVIS said that the question of injuring the healthy nerve into which the paralyzed nerve is transplanted requires great consideration. In one case of deltoid paralysis he produced a temporary wrist-drop.

DR. YOUNG said that he has united the two largest nerves in the body. The results were only moderately successful. By using fine instruments he found that he could avoid injuring the nerves.

DR. H. M. SHERMAN, San Francisco, asked whether or not the scar tissue might not grow again, after having been removed. He thinks that it would be wiser to wait to see whether or not power would return in a case of birth palsy than to subject the child to the danger of operation.

DR. STERN described a case in which he operated for the cure of athetoid motion in the hand. The athetoid motion was almost entirely abolished, and the patient has sensation in the arm, but no voluntary motion.

DR. CHARLES E. THOMSON, Scranton, Pa., said that he always employs catgut in his work. He described an operation done for nerve injury in each of five cases. The result in four was very satisfactory. The fifth was a case in which the spinal cord had been completely crushed. Dr. Thomson freed the two nerves on each side and traced them out along the ribs. He then drew them in, passed them down, and united them to the nerves below the injury. Nothing of the ultimate result could be known, because the man died of an abdominal injury received at the same time as the injury to the cord.

DR. SAMUEL C. BALDWIN, Salt Lake City, said that the lack of success in these cases may be due to cicatricial constriction of the nerves, as he found in operating for a second time in one case. He removed the scar tissue and secured a good result.

DR. A. S. TAYLOR, New York, said that before a decision can be reached regarding the relative advantages of lateral implantation and end-to-end anastomosis, some experimental work must have been done. The use of arteries for bridging is good theoretically, but he does not see how it would be possible to keep an adequate supply always on hand. Although the parents have been pleased with the result, there was no physical evidence of improvement in the actual results. One has to expect a certain amount of regrowth of connective tissue. His experience has been that at the end of two or three months there is a spontaneous improvement which continues for about two years and then stops.

Operation for Burn Scars. Correction of Deformities Following Colles' Fracture.

DR. STEWART L. MCCURDY, Pittsburg, said that the operation for burn scars consists in extending cicatricial bands across joints by splitting them along the crest from end to end, and cutting to the right at a right angle from the end of the first cut, and to the left at the other end. The flaps thus made are dissected loose from the deep tissues. As the contracted portion is extended, the angles of the flaps drop into the corners left by the end or right-angled incision. In the other paper, he gave suggestions for the early treatment of Colles' fracture. The method of correcting the deformity consists in opening the seat of fracture, separating the bones, reducing, breaking up adhesions, and treating as a recent fracture.

DISCUSSION.

DR. H. M. SHERMAN, San Francisco, referred to the difficulty in reducing the deformity after the fragments have become separated and in holding the fragments in proper position afterward. The force required is sufficient to produce sloughing or interfere with the circulation. The posture treatment should be followed, instead of pressure to hold the fragments in place.

DR. PECKHAM mentioned a case in which one-third of the body was severely burned. The surface had completely healed, leaving no scar whatever.

DR. MCCURDY referred to an explosion in which a large number of persons were burned, but in which no keloid had formed. In none of his cases of fracture had there been either sloughing or infection. It is important, he said, to break up the adhesions thoroughly and to make the correction at the time of the operation.

Etiology and Treatment of Lateral Curvature.

DR. P. W. NATHAN, New York City, stated that abnormal weight-bearing can not be the cause of spinal deviation. Static conditions are never responsible for organic or structural

lateral curvature. These are caused by a distinct pathologic process, which appears at puberty and, after running a definite course, disappears and leaves the spine deformed. After the disease has run its course, the deformity is incurable, although the posture may be improved.

DISCUSSION.

DR. MCKENZIE said that he had seen a well-marked case of lateral curvature in an infant.

DR. R. W. LOVETT, Boston, said that other statistics than those used by the author of the paper showed that many cases of lateral curvature appear before the age of 10. He suggested that the condition may follow empyema, the curvature being to the sound side of the chest, and may also follow infantile paralysis of the muscles of one side of the back. He thinks that many curves are due to structural causes.

DR. H. M. SHERMAN, San Francisco, said that he wrote a paper some time ago, stating his belief that scoliosis is due to a condition in the bone, probably rickets. This would give a basis for the structural change, followed by the definite deformity.

DR. P. W. NATHAN said that the statistics quoted merely confirmed his own findings. He admitted that empyema and infantile paralysis do sometimes produce scoliosis. The remainder of the cases that are not plainly due to rickets he considered to be those that come on before adolescence and immediately after puberty.

Mechanics of the Shoulder Joint from an Anatomic Viewpoint.

DR. JOEL E. GOLDTHWAIT, Boston, said that erect position of the shoulder is that of greatest stability, there being from 50 to 60 degrees less motion in the rotation of the humerus in the glenoid cavity than when the shoulder droops forward. In the latter position, the lesser tuberosity of the humerus rests against the coracoid process, which is not above the head of the bone, but in front of it, in this droop shoulder position. This leads to irritation at the point of pressure and to inflammation of the coracobranchialis bursa. The restriction of motion at this point that such an inflammation causes, with the change in the angle of the pull of the long head of the biceps tendon, favors and makes easy displacements of the head of the humerus.

DISCUSSION.

DR. H. P. H. GALLOWAY, Winnipeg, Manitoba, asked whether or not the cases of subdeltoid bursitis are associated with subcoracoid bursitis, and whether it is possible to know whether the trouble is due simply to the coracoid bursa or to the subdeltoid.

DR. STERN asked the treatment in cases of subdeltoid bursitis.

DR. ALBEE referred to two cases of dislocation of the shoulder in young men, on whom he had operated by a modification of Burrell's method, with satisfactory results, neither patient having had any recurrence of the dislocation.

DR. ARNOLD has observed that when he has tried to relieve the shoulder from weight-bearing by putting it in a high sling the patients had more pain than when the arm was hanging down.

DR. J. E. GOLDTHWAIT, replying to a question, said that in writing the paper he had in mind the ordinary spring-back brace. He believes that the ordinary position in which surgeons place the shoulder after traumatic dislocation is not the best position, being equivalent to the forward position of the shoulder. The arm should be tied to the side, rotating it outward at a right angle. In answer to Dr. Galloway, he said that subdeltoid and subcoracoid bursitis are frequently associated, but that often there is not subdeltoid bursitis. The treatment in subdeltoid bursitis, he said, is the same as the treatment of any other bursa. When an operation is performed, if the patient is not naturally erect, the surgeon should insist on the shoulders being thrown back.

Occurrence of Anterior Poliomyelitis in Massachusetts in 1907. Investigations by the State Board of Health.

DR. ROBERT W. LOVETT, Boston, in this paper, gave the result of an inquiry addressed to every physician in Massachusetts, asking for a report of the cases seen in 1907. An analysis of 238 cases reported, with regard to distribution, time of occurrence, evidence of contagion, and other factors bearing on etiology, showed that the data obtained pointed to separate foci of infection, with transmission to neighboring towns.

Necessity for Early Orthopedic Treatment of Poliomyelitis.

DR. WISNER R. TOWNSEND, New York, stated that the majority of cases of poliomyelitis are followed by deformities, practically all of which can be prevented by appropriate treatment. This may occur soon after the attack. Orthopedic treatment is desirable from the beginning. He gave statistics of the deformities occurring within eight months after the epidemic of 1907 in and around New York City.

Results in the Treatment of Infantile Paralysis.

DR. E. H. BRADFORD, Boston, presented this paper early in the session, but it was discussed in connection with other papers on poliomyelitis.

Discussion on Poliomyelitis.

DR. W. R. TOWNSEND, New York, in relation to cases of recovery mentioned in Dr. Lovett's paper, said that he had not seen one genuine case of complete recovery. The cases in which recovery had been pronounced complete were those in which there had been marked depression, and the paralysis had not been relieved, although this weakness had been improved.

DR. MCKENZIE described an epidemic of the disease in Canada in 1905 or 1906. He saw none of the cases during the attack, but the conditions in those that he saw afterward were similar to the conditions ordinarily following infantile paralysis. In two families three children in each were left badly crippled by the illness. In the treatment he laid a great deal of emphasis on education. He cited at length a case to show the effects of educating the child gradually to use apparatus.

DR. J. RIDLON, Chicago, said that during the last four years he has seen several cases of anterior poliomyelitis in adults, and that care should be taken not to overlook its symptoms when they appear in older persons.

DR. RIELY laid emphasis on the beneficial effects of rest in these cases and mentioned an illustrative case.

DR. ARNOLD said that the late epidemic of poliomyelitis had been felt in Connecticut also, where the same phenomena were noted as in Dr. Lovett's cases. He said that the disease also occurs epidemically among dogs, cats and chickens. He has seen cases of complete recovery, especially in chickens. These epidemics usually occur in the fall, and wet seasons are prone to bring them about. He suggested the use of these animals for the purpose of studying the pathology of the disease. As a transition between complete rest and putting the child on its feet he suggested exercise on the floor.

DR. H. M. SHERMAN, San Francisco, referred to the use of electricity in such cases, and said that he regarded it merely as a means of irritating the child. He has always succeeded in getting a fair idea of the child's power to use the various muscles by tickling it or by picking its foot with the end of a match, in order to get it to try to use the muscles. He does not see how faradism to the muscles can affect the condition of the spinal cord, which is the seat of the disease. He suggested that pediatrists, when called in to see a sick child, should always test its power to use its muscles, as well as examine its throat.

DR. PECKHAM was in sympathy with Dr. Townsend's plea for orthopedic treatment of these infantile cases, as well as with Dr. Sherman's views regarding electricity. He has given up the use of the latter.

DR. H. M. SHERMAN remarked that a large number of cases of paralytic clubfoot and paralyzed legs of mild type appear with no history of a previous sickness to account for the condition.

DR. MCKENZIE said that faradism will produce no contraction in a muscle that has the reaction of degeneration.

DR. J. E. GOLDTHWAIT denied that it is commonly supposed that the disease is confined to children.

MR. LITTLE said that his experience in England had been also that the commonest history in such cases had been that the child had gone to bed well and awakened paralyzed.

DR. H. L. TAYLOR stated, as the result of his observation, that a careful examination of the voluntary power by a competent orthopedic surgeon would usually prove more useful than a report of the electrical examination by a neurologist. He has received reports of this kind absolutely misleading in the light of the clinical examination. He has found treatment to be absolutely harmful during the attack and for the first two months afterward and to be absolutely useless after that time.

DR. R. LOVETT said that his reason for writing the paper was to call the attention of general practitioners to the inquiry, thus enabling them to recognize these cases better. He thinks that the most sensible treatment would be to empty the bowels rather than to blister the spine. He considers the disease an intestinal infection with an anaërobic bacillus such as might be obtained through milk. He believes that the matter of partial paralysis receives too little attention. A muscle may be either partly or completely paralyzed, or may be simply stretched and disused. Between the stages of activity and paralysis there is a stage of slight weakness. More attention should be paid to voluntary attempts to move muscles and less to massage and electricity.

DR. W. R. TOWNSEND, New York, said that an educational campaign would accomplish more if the orthopedists allowed electricity to be employed, even though they do not believe in it.

Drop Phalanx.

DR. WALTER G. STERN said that the essential lesion in this condition is a subcutaneous rupture, or an overstretching of the extensor tendon at or near its insertion into the distal phalanx. The deformity is produced by indirect violence, often slight. The power of active extension of the phalanx is lost, and the phalanx drops down and remains flexed at a right angle. Passively, the finger can be fully extended.

DISCUSSION.

DR. H. I. TAYLOR asked how many cases had been treated by splinting and how many operations; also the duration of the deformity.

DR. STERN replied that in three of his eight cases he found it necessary to suture. The remainder were treated by splinting for six weeks. These were recent cases, the patients were operated on within a few weeks after the occurrence of the injury.

Typhoid Spine.

DR. GEORGE B. PACKARD, Denver, reported cases, giving the histories, duration, diagnosis and treatment. In some there was evidence of structural change.

DISCUSSION.

DR. RUGH said that he had had two cases, one of which was very much of the character of those described by Dr. Packard. The other was one of severe injury following the delirium of typhoid. The progress of the typhoid spine was so much more rapid than that of the tuberculous condition also present that Dr. Rugh believed that the diagnosis had been made out.

DR. J. E. GOLDTHWAIT said that in many cases of typhoid spine there is no inflammatory condition, and posture relieves these cases.

DR. JOHN L. PORTER, Chicago, has found that patients who had left the hospital and returned later usually say that they had had pain in the spine since shortly after getting up and around. He believes that the severity of the condition is in proportion to the amount of inflammatory reaction that takes place. All his patients recovered under the sole treatment of keeping them flat on the back.

Painful Feet of Raynaud's Disease.

DRS. H. AUGUSTUS WILSON and CHARLES H. MUSCHLITZ, Philadelphia (paper read by the former), said that the painful feet of Raynaud's disease are of a peculiar character. The pains are symmetrical, worse in cold weather, easily affected by use, and not immediately relieved by rest, and frequently the pain continues for a long time after the discontinuance of the function that has produced it. Characteristic bilateral gangrenous spots develop. The most trivial operative procedures are followed by non-healing and sloughing. Nails, when they become loose, slough more or less extensively if forcibly removed. Pressure apparatus of any kind is productive of sloughing and gangrenous spots.

Medicolegal

Additional List of Alcoholic Medicinal Preparations for the Sale of which Special Tax is Required.

Continuing the list (Circular 713, of Dec. 3, 1907) of alcoholic medicinal preparations for the sale of which the United States government requires a special tax, Internal Revenue Circular No. 727 of July 1, 1908, gives the following additional list of similar preparations, analyzed and passed on since the date of Circular 713:

American Alimentary Elixir.
Aromatic Bitters.
Bismarck Laxative Bitters.
Bismarck's Royal Nerve Tonic.
Blackberry (Karles Medicine Company).
Blackberry Cordial (International Extract Company).
Blackberry Cordial (Irondequoit Wine Company).
Blackberry Cordial (Strother Drug Company).
Blackberry and Ginger Cordial (Standard Chemical Company).
Black Tonic.
Bradenberger's Colocynthis.
Brown's Utryme Tonic.
Celery Pepsin Bitters.
Clifford's Peruvian Elixir.
Crescent Star Jamaica Ginger.
Coca Wine.
Colasaya.
Dr. Brown's Blackberry Cordial.
Dr. Brown's Tonic Bitters.
Dr. Hopkins' Union Stomach Bitters.
Dr. Hoffman's Golden Bitters.
Dr. Sterki's Ohio Bitters.
Dubonnet.
Dubonnet Wine.
Elixir of Bitter Wine (Pleasant Tonic Bitters Company).
Elixir Calisaya.
Eucalyptus Cordial.
Ferro China Bascal.
Ferro China Bissler.
Ferro Quina Bitters.
Fine Old Bitter Wine.
Gastrophan.
Gentian Bitters.
Genuine Bohemian Malted Bitter Wine Tonic.
Glycerin Tonic (Elixir Pepsin).
Greiner's Blackberry Cordial.
Health Bitters.
Herbton.
Herbs Bitters.
Jack Pot Laxative Bitter Tonic.
Jarvis Blackberry Brandy.
Juniper Kidney Cure.
Karlsbader Stomach Bitters.
Kola and Celery Bitters.
Kola Wine.
Kreuzberger's Stomach Bitters.
Lee's Celebrated Stomach Bitters.
Mikado Wine Tonic.
Milburn's Kola and Celery Bitters.
Miod Honey Wine.
Neuropin.
Newton's Nutritive Elixir.
O'Hare's Bitters.
Old Dr. Jacques' Stomach Bitters.
Our Ginger Brandy.
Ozark Stomach Bitters.
Pepsin Stomach Bitters.
Peptonic Stomach Bitters.
Pioneer Ginger Bitters.
Quinquina Dubonnet.
Rimsovo Malto-Sove Vino Chino,
Severas Stomach Bitters.
Sirena Tonic.
Smart Weed.
Steinkonig's Stomach Bitters.
St. Raphael Quinquina.
Strauss Exhilarator.
Tatra.
Tolu Rock and Rye.
True's Magnetic Cordial.
White's Dyspepsia Remedy.
Zeman's Medicinal Bitter Wine.

Privilege Does Not Extend to Mere Observer of Operation.

The Supreme Court of Iowa says that the suit of Woods vs. Incorporated Town of Lisbon was to recover damages alleged to have been caused by a defective sidewalk. It was alleged that the injuries received produced a miscarriage and otherwise permanently injured the plaintiff, who, on account of said injuries, was compelled to go to a hospital for treatment. Certain operations were performed by Dr. C., with the assistance of Dr. Y., and in the presence of still others. The defendant contended that the plaintiff's fall had not produced a miscarriage, and that the operations were made necessary by a diseased condition that existed at the time of the accident. Neither Dr. Y. nor the Drs. C. were called by the plaintiff to show her condition before she was taken to the hospital, or at that time, nor did either of them testify as to the character of the operations performed for the plaintiff. But a Dr. B. witnessed one of the operations, and was called by the defendant to testify relative thereto. On his preliminary examination it appeared that he had never met Dr. Y. before the day of the operation, and that on that day he met him on the street while on his way to the hospital. Dr. B. had been employed by the defendant to be present at the operation if possible, and he in fact went to the hospital when Dr. Y. did. Before reaching the hospital Dr. Y. told Dr. B. what the operation was to be, but neither at that time nor at any other time was there any consultation between them as to the case, or as to the nature of the operation about to be performed. The testimony showed absolutely that the relation of physician and patient did not

exist, that Dr. B. in no way participated in the work, and that he was merely an observer thereof.

The trial court held Dr. B. an incompetent witness under Section 4608 of the Iowa Code. That section provides "no practicing . . . physician, surgeon . . . who obtains such information by reason of his employment, . . . shall be allowed, in giving testimony, to disclose any confidential communication properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice or discipline." The Supreme Court holds the trial court's ruling erroneous.

The statute, the Supreme Court says, has been construed to include knowledge or information acquired by the physician by observation or examination. And if the relationship of physician and patient had existed at the time in question, the ruling would have been correct. But, as stated above, there was no such relationship, and without it the testimony offered was clearly competent. There was no confidential relation, and hence no privilege existed.

The plaintiff urged that Dr. B. was not in the operating room with her consent, or that of her husband, and that because thereof he could give no testimony as to what he observed. The court, however, knows of no authority going to this extent; but, on the contrary, such a holding would be directly adverse to the rule of the cases and to the language and intent of the statute itself.

In Sutcliffe vs. Traveling men's Association, 119 Iowa, 220, it is said that the mere presence of the physician did not render the communication confidential when not such in fact. And in State vs. Height, 117 Iowa, 650, this court held that the testimony of a physician who had made an examination of a man against his will was competent because the confidential relation protected by the statute did not exist.

"Immediate" and "Proximate" Causes of Death.

The Supreme Court of New York, Appellate Division, Second Department, says that in the case of Ostrander vs. Orange County Traction Co., an action to recover for a party's death, the company insisted that the injuries received at the time of the accident were not the proximate cause of death; that the evidence did not connect the accident with the immediate cause of death. The attending physician testified that death resulted from edema of the lungs, superinduced by heart disease. But it was urged that testimony that the immediate cause of death was edema of the lungs and heart disease signified nothing here, as the material question involved was, not the immediate cause of death, but the proximate. To the court, however, it seemed that the immediate cause of death was of great significance. On that must depend the question of proximate cause. The proximate cause of death must be the cause that produced the condition resulting in death; and if it was conceded, as it was here, that the immediate cause of death was edema of the lungs, due to heart disease, then the plaintiff was bound to show that the accident produced, or at least developed, the heart disease, with its consequent edema of the lungs. Evidence that the deceased suffered from paralysis, that the injury was sufficient to produce paralysis, and that paralysis might result in death, would be sufficient to sustain the plaintiff's judgment, if it was shown that the deceased actually died from paralysis, or if it was shown that paralysis was the inducing cause of the heart disease, with its consequent edema of the lungs; but, when it was once conclusively shown that the immediate cause of death was edema of the lungs, it was incumbent on the plaintiff to show, not that the deceased was afflicted with paralysis, which might have resulted in death, but that this paralysis had some definite relation to the edema. It was not material how seriously she might have been injured. If she did not die as the result of such injuries, then the plaintiff in this action, depending entirely on her death, was not entitled to recover damages. For instance, if the deceased had died from smallpox, the plaintiff in this action would not be entitled to recover because her intestate might have been injured in an accident on the defendant's railroad; and that was equally true of the cause of death which was conceded to have existed. The rule is that the question to be determined is: Was there an unbroken connection between the wrongful act and the injury—a continuous operation? Did the facts constitute a continuous succession of events so linked together as to make a natural whole, or was there some new and independent cause intervening between the wrong and the injury? In this case the deceased died from edema of the lungs, and no fact was produced to show that edema of the lungs could have been produced by the accident, and without such facts the plaintiff failed to show that she was entitled to recover in this action, for the reason that it was not shown that the death was due to any fault on the part of the defendant. There must be a connection of the accident with death—a continuous succession of results traceable to the defendant's wrong; and the evidence in this case failed to establish the necessary facts.

Physician's Prescription Druggist's Protection.

The Court of Appeals of Kentucky says, in the case of Commonwealth vs. Byers, where a physician prescribed for a man's wife brandy, creosote and syrup of hypophosphites, that, when a prescription is presented to a druggist who is authorized to sell on the prescription of a regular practicing physician who possesses the statutory requisites, the druggist, so long as he acts in good faith, is entitled to the protection of the law so far as the sale is concerned. The prescription itself is all that he may look to or is required to look to. He can not know whether the person for whom it is prescribed is sick or not, and, if it should be developed in any case that the person holding the prescription or for whom it is given is not in fact sick, then it becomes a question between the commonwealth and the physician issuing the prescription, and not between the commonwealth and the druggist who, in good faith, fills it.

Besides, in a case like this, where the prescription is for the wife and is issued in the name of her husband, in the absence of any charge of fraud or wrongdoing, the court is of opinion that the law is not violated. The purpose of the statute in requiring the prescription to state the name of the person to whom it is prescribed was to prevent druggists, physicians, or others from evading the law, and issuing, filling or using prescriptions issued in blank; but it was certainly not intended that the person for whom the prescription was filled should necessarily be the patient. This would, indeed, be a harsh rule; for, if one were sick enough to require the services of a physician, he or she might and frequently would be unable to go personally and have the prescription filled.

In order to comply strictly with the requirements of the statute, the prescription in this case should have stated that it was for the man's wife, whereas it stated that it was for him. If there was any violation of the law, it was on the part of the physician in failing to state accurately the person for whom the liquor was prescribed. However, the court is of opinion that the record showed that he was aiming to comply with the requirements of the law.

Contract "to Nurse" a Person Not One to Practice Medicine.

The Supreme Court of Illinois says, in the case of Oswald vs. Nehls, that the duties assumed by the plaintiff under a contract set forth were "to personally care for and nurse the said Ludwig J. Nehls for and during the term of his natural life." It was argued that this contract was unenforceable because its performance required the plaintiff to practice medicine without being legally licensed so to do. But the court does not agree with that view. The agreement "to nurse" an adult person necessarily conveys the idea that the object of the care is sick or is an invalid. It means more than mere watchfulness. It means such care of the person and attention to the surroundings as will conduce to the comfort and hasten the recovery of the patient. The practice of medicine, within the meaning of the Illinois statute regulating the practice of medicine, and as generally understood, necessarily requires a knowledge of all those things a professional nurse is supposed to know. It embraces much more. It includes the application of knowledge of medicine, of disease, and the loss of health. People vs. Blue Mountain Joe, 129 Ill., 370. Neither the terms of the contract nor the acts done in performance thereof by the plaintiff were illegal under the Illinois statute relating to the practice of medicine.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

July 25.

1 Complicating Exophthalmic Goiter. C. G. Stockton and A. E. Woehnert, Buffalo.
2 *Supposed Evils of Expert Testimony. F. X. Dercum, Philadelphia.
3 *Expert Testimony and the Alienist. W. A. White, Washington, D. C.
4 *Intrapelvic versus Abdominal Treatment of Mechanical Dystocia. E. H. Grandin, New York.
5 Dog Days: The Physician's Vacation. J. Knott, Dublin.
6 *Conjugal Diabetes. A. C. Croftan, Chicago.
7 *The Doctor as a Public Educator. F. Van Fleet, New York.

2. **Expert Testimony.**—Dercum says that much misunderstanding exists, especially on the part of physicians, as to the nature of expert testimony and as to its proper rôle and functions; that much has been said from time to time of the evils, so called, of expert testimony, and that every now and then correctives for these supposed evils are proposed, which he believes to be very unwise. He refers particularly to a paper on psychiatric expert evidence in criminal proceedings (*New York Medical Journal*, March 7, 1908; abstracted in THE JOURNAL, March 21, p. 991). Expert evidence differs from ordinary evidence in that it is essentially opinion evidence. Dercum discusses the qualifications necessary to constitute an expert and opposes any attempt to limit the expert to an official class. As to the so-called evils of expert testimony, observations in the courts extending over a quarter of a century have convinced him that these evils are greatly exaggerated, and are due, not to methods of legal procedure, but to the expert himself. The bias of the expert is the first evil. Instead of regarding himself as a witness he often assumes the rôle of counsel. Before the trial he should form an unbiased opinion on the facts and present it to the counsel employing him, without regard to the contention of that counsel, and if the opinion is favorable it should also present all the facts, favorable or unfavorable, with equal force. After forming his opinion, the conscientious expert should rearray the facts in his mind and see how they would favor a conclusion opposite to that which he has reached. Other difficulties are due to the ignorance of the witness as to the nature of evidence, both lay and expert, to a faulty method of presenting the testimony, and to the use of technical terms. Dercum discusses the hypothetical questions and the method and demeanor of the expert. As to the question of opposing experts, it is not so much the members of the bar or the courts, but physicians themselves, who keep alive this reproach, as Dercum believes from an entire misconception of the facts. Differences of opinion regarding actual findings are usually slight; it is in their interpretation that the greatest differences are found, and here they may be perfectly legitimate. Most trials as regards insanity deal really with borderland cases, and in this class very many cases occur which are not litigation cases; nevertheless competent opinions differ concerning them. In every department of knowledge similar differences of opinion are developed. For instance, in a large percentage of cases in the Supreme Court of the United States, dissenting opinions, often in exact opposition, are handed down. Are we, then, to speak of the evils of the Supreme Court? No plan will do away with differences of expert opinion. Dercum considers the suggestion of the appointment of experts by the courts as unwise and impracticable.

3. **Expert Testimony.**—White considers that the attitude of the public against expert testimony has been created and fostered by newspaper reports of trials. The reason why experts can be found for either side is because practically every case that goes into court has two sides. This is especially the case in will contests. White discusses the usual legal test of insanity, the "right and wrong test," or test of knowledge, which he considers should be erased from the statutes. The idea of a jury passing on a highly technical matter, such as insanity, is ridiculous. The fundamental defect of the criminal law is that it so often deals with the crime and not with the criminal. The real question at issue is not whether the offender stole $34 or $36 (and is, therefore, to be indicted for petit or grand larceny, respectively), but what manner of man is he? To answer this, it is necessary to make an analysis of the individual and the causes leading up to the offence. White approves of the method practiced in St. Louis, of committing the accused criminal insane for observation at the state hospital for insane.

4. Abstracted in THE JOURNAL, July 4, 1908, p. 70.

6. **Conjugal Diabetes.**—Croftan discusses the statistics of conjugal diabetes, and insists that it is clear in most cases that one is dealing with more than a coincidence. He insists that whenever diabetes is found in a patient it should be looked for in the mate.

7. **The Doctor as Educator.**—Van Fleet discusses the medical practice laws, which he considers defective, in that they fail to protect the public against irregular practitioners and nostrum sellers, and at the same time are raising the standard of qualification so high that only persons of more or less independent means can wisely enter on the practice of medicine. The physical defects of school children, the prevention of tuberculosis, animal experimentation, etc., are also considered as matters in which the educative influence of the physician should be exercised.

Boston Medical and Surgical Journal.

July 23.

8 *Diagnostic and Therapeutic Use of Tuberculin. L. Brown, Saranac Lake, N. Y.
9 Permanent Stenosis of Common Duct from Inflammation or Duodenal Ulcer. H. Packard, Boston.
10 *Melano-Sarcoma of the Orbit. G. McConnell and R. Burman, St. Louis.

8. **Tuberculin.**—Brown discusses the diagnostic use of tuberculin by the cutaneous, the conjunctival and the subcutaneous methods; also the contraindications to its diagnostic use. He then considers its therapeutic use, discusses the varieties of tuberculin, the methods of administration, dosage, and interval, and says that the present status of tuberculin therapy may be expressed in a few words as follows: Tuberculin, when properly given, does no harm, may produce no apparent immediate results, but may markedly benefit an individual patient who can follow at the same time the hygienic-dietetic treatment while in a health resort or at home and at rest. It may even prove of benefit to those who must continue at work. Small doses and careful increases are most important, and by following these very closely some patients, even in advanced stages, reap great benefit. The immediate and ultimate results of treatment are that the patients are often improved, fewer relapses occur, and more patients lose the tubercle bacilli in their sputum.

10. **Melano-Sarcoma of Orbit.**—McConnell and Burman report a case of melano-sarcoma of the orbit, showing the unusual interval of nearly eight years between the first indication of trouble and the death of the patient. A point of pathologic interest was the great enlargement of the liver, due mainly to extreme hyperplasia of bile ducts. There were no secondary growths.

Medical Record, New York.

July 25.

11 History of Medicine in Province of Quebec, from 1535 to 1838. H. S. Birkett, Montreal.
12 *Pathogenesis of Pernicious Malaria. W. H. Deaderick, Marianna, Ark.
13 *Improved Treatment of Gonorrheal Arthritis. E. C. Titus, New York.
14 Unusual Cardiac Murmurs. R. Ellis, New York.
15 *Magnesium Sulphate in Tetanus. W. H. Powers, Ocala, Fla.

12. **Pernicious Malaria.**—Deaderick describes the evolution of our modern knowledge concerning the pathogenesis of pernicious malaria, and regards the following as the most important pathogenic factors exciting perniciousness and as being approximately of relatively equal importance: 1. An excessive number of parasites. 2. Localization of parasites. 3. Toxins. 4. Individual predisposition and external etiologic influences. He discusses each of these causes in detail.

13. **Electrotherapy of Gonorrheal Arthritis.**—Titus has been led by experiments extending over a series of years to the conviction that static currents exercise a potent curative influence on infective conditions, both local and general. In this

paper he deals with their effect on gonorrheal arthritis. He has for some years been treating non-gonorrheal prostatitis and seminal vesiculitis with the static wave current, by means of a metal electrode placed against the gland and vesicles through the rectum. Its action he believes explainable as follows: The oscillations of the static wave current, surging through the tissues at each discharge between the positive and negative poles (the patient is connected to the positive pole, while the negative side is grounded) produce deep, painless, rhythmical, wave-like contractions, or physiologic tissue gymnastics, even in the ultimate protoplasmic cell, thereby relieving the local stasis, inducing a circulatory drainage and restoration to normal metabolism.

From this experience he was led to treat gonorrheal arthritis and seminal vesiculitis by means of an insulated vacuum electrode. He found that cases hitherto refractory were cured, which result he explains as follows: The actinic action of the vacuum tube discharge exerts a direct bactericidal effect on deep-seated gonococci. In addition, there are generated on the surface of the vacuum electrode, when in contact with parts or tissues of the body, nascent nitrous acid and ozone, as a result of the dissolution of the air between the surface of the tube and the lining membrane of the part or cavity; these, together with the actinic discharge of the vacuum tube, are carried into the tissues to a depth of from 2 to 6 mm. by the action of the high potential currents.

He thus came to try it in the treatment of systemic gonorrheal infections after the following method: The rectum having been emptied and the patient being in the Sims position on an insulated platform, the vacuum tube is passed into the rectum and pressed on the prostate gland or seminal vesicles, and connected with the negative pole of the static machine. It is essential to begin with a small spark-gap. Treatment should never be painful; each treatment should last about twenty minutes, be repeated daily for two weeks, then on alternate days, until the secretions from the prostate and vesicles are free from gonococci, as shown by stripping the glands. When the secretions no longer contain gonococci, indirect static sparks can be daily applied to the joints.

15. **Magnesium Sulphate in Tetanus.**—Powers reports a case of tetanus, following a gun-shot wound, successfully treated by intraspinal injections of a 25 per cent. solution of sterilized magnesium sulphate. This process paralyzes the muscles and prevents fatal exhaustion before antitoxin has time to act.

Virginia Medical Semi-Monthly, Richmond.

June 26.

16 Psychotherapy. P. C. Hunt, Washington, D. C.
17 Nature and Treatment of Fever. W. S. Gordon, Richmond.
18 Value of Morphin Derivatives in Ocular Therapeutics. W. Fox, Philadelphia.
19 Intracranial Complications of Otitic and Nasal Origin. C. M. Miller, Richmond.
20 Puerperal Eclampsia. J. E. Walsh, Washington, D. C.
21 Treatment of Placenta Previa. M. D. Delaney, Alexandria.
22 Treatment of Inguinal Adenitis. R. T. McNair, Emporia.

July 10.

23 Technic of Operation for Neoplasms of the Neck. J. S. Horsley, Richmond.
24 *Cerebral Concussion. L. W. Glazebrook, Washington, D. C.
25 Uses of the Stomach. M. O. Burke, Richmond.
26 Recent Developments in the Study of Cancer. H. B. Stone, Charlottesville.
27 Vesical Calculi. R. L. Raiford, Conley.
28 Modern Treatment of Pulmonary Hemorrhage. M. Junger, Ironville.
29 The Future of Medicine. E. L. Hergert, Brooklyn.
30 Avulsion of Ankle-Joint. E. P. Tompkins, Roanoke.
31 Principles of Surgery. S. McGuire, Richmond.

24. **Brain Concussion.**—Glazebook discusses the views held by different authorities as to the pathology of "concussion of the brain." He asks the question, "Is it possible for a person to receive a direct or indirect injury to the head sufficient to cause death, without presenting at the autopsy table evidence of fracture, edema, hemorrhage, contusion or laceration; or is it possible for a person to die from brain shock, pure and simple, as from other forms of so-called shock?" Since 1900 he has performed 500 autopsies in 161 deaths, being the result of injuries to the head. He answers "Yes" to both questions and records six cases in which death occurred from certain head injury in which no fracture, hemorrhage, edema, contusion or laceration could be detected.

California State Journal of Medicine, San Francisco.

June.

32 Anatomy of Thyroid and Parathyroid. A. F. Gillihan, Berkeley.
33 *Medical Treatment of Goiter. D. Fulton, Los Angeles.
34 *Surgical Treatment of Goiter. W. I. Terry, San Francisco.
35 Relation of the Thyroid to Mental Disease. J. W. Robertson, Livermore.
36 *Early Symptoms of Dementia Precox. C. L. Allen, Los Angeles.
37 Fungus Coccidioides. H. A. L. Ryfkogel, San Francisco.
38 Smallpox. C. H. Walker, San Jose.
39 Experiences of a Health Officer. H. J. B. Wright, San Jose.
40 Common Gastric Disorders Among School Children. A. W. Perry, San Francisco.
41 Progress of Preventive Medicine. E. L. Blackmun, Stockton.
42 Appendicitis Diagnosis. S. Hyman, San Francisco.

33. **Medical Treatment of Goiter.**—Fulton points to the multiplicity of theories, many of the most contradictory nature, on which as many opposing methods of treatment have been based. The percentage of cures is smaller by medical than by surgical treatment, but medical treatment is not, therefore, useless. In a large majority of cases, Graves' disease tends toward recovery, and spontaneous cure often takes place. Medical treatment will relieve the most distressing symptoms at a time when these contraindicate operation, or pending natural improvement. The principal measures are rest, balneotherapy and dieting. These, with the symptomatic use of drugs, for there is no specific, will often cure incipient cases and relieve the most advanced cases of aggravating symptoms. Electrotherapy probably belongs to suggestive therapeutics. Roentgen rays have not fulfilled expectations; neither has serum treatment as regards end-results, though it may be hoped that the serum of Rogers and Beebe may live up to its promise. His conclusion, however, is that, until sufficient clinical proof of the value of this treatment is submitted, it is the duty of the internist to give his patients who are not improving under medical treatment the advantage of the truly brilliant curative results obtained by surgery. Both surgeon and internist advise medicinal treatment; this failing, surgery is indicated.

34. **Surgical Treatment of Goiter.**—Terry says that surgical treatment of a goiter may be demanded, first, on account of its size; second, because of pressure symptoms affecting the trachea, larynx, esophagus or other important structures in the neck or upper portion of the thorax; third, when the growth is rapid, giving rise to the suspicion of malignancy; fourth, because of infection of the goiter; fifth, when the Basedow symptoms are present. He discusses these indications in detail. Operative treatment of exophthalmic goiter is indicated when after rational internal medication for a period not longer than three months the patient is not materially improved or cured.

Terry discusses the various measures—excision, enucleation, resection, exenteration of goiters, ligation of thyroid arteries, division of the isthmus, and resection of the sympathetic ganglia—that have been recommended. He points out the dangers—operative myxedema, removal of the parathyroids, injury to the recurrent laryngeal, and the presence of a so-called goiter heart, as a contraindication to thyroidectomy. He discusses the question of anesthesia.

36. **Dementia Præcox.**—Allen concludes his paper with the following statement: The symptoms of dementia præcox are fairly characteristic and should be sought for in any young person who shows unaccountable change in habits and disposition. In this connection the scientific study of the mental and physical characteristics of the pupils in our schools and colleges should put at our disposal valuable information, and this work should command the support of all physicians.

University of Pennsylvania Medical Bulletin, Philadelphia.

June.

43 *Gynecologic Instruction. J. G. Clark, Philadelphia.
44 The Omentum: Its Anatomy, Histology and Physiology in Health and Disease. C. C. Norris Philadelphia.
45 Chorioepithelioma of the Uterus. B. M. Anspach, Philadelphia.
46 *Office Gynecology. W. B. Small, Philadelphia.
47 The Gould Stitch. J. G. Clark, Philadelphia.
48 Buried Catgut and Intercutaneous Suture in Plastic Operations on Perineum. B. M. Anspach, Philadelphia.
49 Nine Cases of Dysmenorrhea. C. C. Norris, Philadelphia.
50 *Surgical Phases of Enteroptosis. J. G. Clark, Philadelphia.

43. **Gynecologic Instruction.**—Clark describes a method of instruction, designed to obviate the difficulties arising from

the dread entertained by patients of being used as clinical material. Though not complete, it has proved so far satisfactory. Its essential feature is the appointment of six senior students as assistants, one being acting family physician, and five consultant assistants. He describes the working of the system and reproduces the report of a case taken under this method by a senior student as acting family physician. The article is illustrated with halftones of a series of clay models made during an operation by a student or instructor to illustrate methods of repair of cervical and perineal injuries.

46. **Office Gynecology.**—Small considers that the general practitioner will not give office gynecology the time or attention it deserves, while the gynecologist with difficulty restrains himself from at once performing a brilliant operation. Nervous influences are often overlooked. A more frequent routine of local applications would greatly reduce the number of operations. In recent cases of displacement he endorses the use of the pessary. He describes the method of dealing with many conditions proper for office gynecology.

50. Published in *Surgery, Gynecology and Obstetrics*, April, 1908, and abstracted in THE JOURNAL, May 23, 1908, p. 1755.

American Journal of Obstetrics, New York.

June.

51 Pyelitis in Pregnancy. H. N. Vineberg, New York.
52 *Placental Transmission of Bacillus Typhosus. B. A. Cohoe, Baltimore.
53 *Indications for Cesarean Section. J. Halpenny, Winnipeg.
54 Extrauterine Pregnancy at Term. W. R. Nicholson, Philadelphia.
55 Diagnosis of Extrauterine Pregnancy. G. R. Holden, Jacksonville, Fla.
56 Therapy in Convalescence from Abdominal Operations. E. H. Grandin, New York.
57 *Neglect of Plastic Surgery About the Pelvic Outlet. W. D. Ward, Rochester, N. Y.
58 Chondrodystrophia Fœtalis. G. C. Waiss, Chicago.

†*Department of Pediatrics.*

59 *Pyloric Stenosis in Infancy. J. F. Moran, Washington, D. C.
60 *Hereditary Syphilis. J. S. Wall, Washington, D. C.
61 *School-Age. G. D. Scott, New York.
62 Diagnosis of Common Skin Diseases of Childhood. W. B. Brown, New York.
63 Pertussis. H. R. Sheffield, New York.
64 *New Treatment of Pertussis. A. M. Fendler, New York.

†Attention is called to this new department of the *American Journal of Obstetrics*, which, like the original portion of that journal, consists of original contributions and abstracts. It also contains the Transactions of the Section on Pediatrics of the New York Academy of Medicine.

52. **Placental Transmission of Bacillus Typhosus.**—Cohoe reports a case in which, abortion occurring at about fifteen weeks during typhoid fever, the fetus was sent to the bacteriologic laboratory with the membranes intact. This made it possible to take cultures from the amniotic fluid and fetal viscera without contamination. The *Bacillus typhosus* was grown therefrom in pure culture. "It is now generally conceded," says the author, "that an infection of the fetus takes place only through the medium of an injured placenta, and that such injury may exist prior to the disease, or may result during the course of the disease from the action of the toxins in the circulating blood of the mother."

53. **Cesarean Section and Sterilization.**—Halpenny reports a case of a primipara, aged 30, with a conjugate vera 6.75 centimeters, in which the question arose as to whether it would be desirable to sterilize at the time of Cesarean section. He submitted the question as a general proposition to thirteen well-known surgeons, with the result that five answered affirmatively, in four cases, however, a reservation being made in favor of the patient's choice; seven in the negative, five, however, leaving the final determination with the patient, and two considering it a question entirely for the mother. Halpenny sums up his paper as follows: Cesarean section should be done (a) in all cases of pelvic contraction in which the conjugata vera is below 5.5 centimeters; (b) in cases in which the conjugata vera is between 7 or 7.5 centimeters and 5.5 centimeters, and the patient has not been infected, is not unduly reduced, and the child is alive; (c) in cancer of the cervix where dilatation will not take place.

Craniotomy or embryotomy should be done in cases of pelvic contraction in which the conjugata vera is not below 5.5 centimeters and the child is not alive. (d) In cases of pelvic tumors which can not be displaced from the pelvis under an anesthetic. (e) In all cases of sudden death of the mother. (f) Possibly in central implantation, placenta prævia. (g) Possibly in dystocia due to ventrofixation or ventro-suspension. Vaginal Cesarean section should probably be done in cases of severe eclampsia with very rigid os. Pubiotomy or symphyseotomy should be done if the conjunctiva vera is not less than 7 centimeters, if the fetus is still alive.

57. **Plastic Surgery of Pelvic Outlet.**—Ward remarks that all over the country everyone seems interested in abdominal surgery, but he insists that not enough attention is paid to injuries to the pelvic floor and cervix. There is a tendency to think danger over when the head is delivered, but, in fact, the shoulders may tear a floor. If a tear occurs, it should be sutured at once. The diagnosis of a laceration of the pelvic floor is not difficult. "If you prick the vulva of an uninjured woman with a needle, a reflex muscular action is excited; the anus is drawn upward and forward, the perineum shortened, and the mouth of the vagina more tightly closed by the action of the perineal muscles. If these muscles are injured, this reflex action will be absent; the woman will simply draw away when pricked." He urges that there is a field for some of our great men in plastic surgery.

59. **Pyloric Stenosis in Infancy.**—Moran concludes as follows: 1. Pyloric stenosis in infancy is due to the following conditions, either of which may exist alone, but are frequently associated: (a) hyperplasia of the tissues of the pylorus, particularly of the muscular coat; (b) simple spasm of the pylorus. 2. The evidence would seem to indicate that the hyperplasia is congenital, and that the pyloric spasm originates after birth. 3. Cases in which the symptom-complex does not develop until some time after birth are probably instances of partial stenosis with secondary spasm or pyloric spasm alone. 4. The pyloric spasm may be due to a neurosis, erosion of the mucous membrane of the stomach or pylorus, or acute or subacute gastritis. 5. Since it is tenable that either hyperplastic or spastic stenosis may be present alone, or that the two may coexist, both medical and surgical treatment are of value, but the sphere of each must be determined by the exigencies of the individaul case.

60. **Hereditary Syphilis.**—Wall discusses the question whether a healthy mother can give birth to a syphilitic child, and concludes in the negative, even though the mother appear healthy. As to treatment, he says that there is a rule which is now gaining an ever-increasing number of followers that a syphilitic should be treated one month out of every twelve—that is, after the usual two years' continued treatment. In the syphilitic child this rule finds special application, nor is it difficult to secure the cooperation of the mother in such persistent treatment if we elicit her aid through a rational explanation of the malign influence a lack of such care will exercise on her offspring.

61. **School Age.**—Scott describes the evolution of mentality in the infant, and discusses the nursery, the requirements of the kindergarten, etc. Six years of age he considers early enough to begin kindergarten; eight or nine, primary school.

64. **Pertussis.**—Fendler reports cases of pertussis in which fifteen drops of a 2 per cent. solution of antipyrin were injected into the larynx, "with phenomenal success," by means of a special pipette devised by Dr. Yankauer.

The Philippine Journal of Science, Manila.

April.

65 *Influence of Symbiosis on the Pathogenicity of Microorganisms. W. E. Musgrave.
66 *Cause of Frequent Reappearance of Cholera in the Philippines (with Statistics From 1902 to 1908.) V. G. Heiser.
67 Studies of Cholera. H. T. Marshall, Manila.
68 Biologic Study of the Water Supply of the Philippines, with Description of a New Pathogenic Organism. R. T. Edwards, Manila.
69 *Typhus Fever in Indo-China. A. Yersin and J. J. Vassal, Annam.
70 "Habu" Venom and its Serum Therapy. T. Kitajima, Tokyo, Japan.
71 Filtration Experiments with Virus of Cattle Plague. E. H. Ruediger.

65. **Symbiosis and Pathogenicity of Micro-organisms.**—Musgrave discusses bacterial symbiosis and animal and bacterial

symbiosis, and concludes, among other things, that the evidence is fairly conclusive in favor of a more or less definite symbiosis; for example, between amebas or other micro-organisms, whether they be found in a saprophytic existence or in pathologic lesions. The most promising field for laboratory research in the future, he says, will be the study of cause and effect, in the complex relations in which they occur in Nature, of the interrelation and interaction of micro-organisms with each other, and in their environment of complex symbiosis and the everchanging and multiple conditions found in hosts.

66. **Cholera in Manila.**—Heiser believes cholera to be endemic in the city of Manila, infesting the sewers, and causing the outbreaks outside as a result of communication. He recommends the thorough disinfection of the sewer system of Manila.

69. **Typhus Fever.**—Yersin and Vassal have been investigating in Indo-China an epidemic that appeared among Tongking coolies. Their conclusions are as follows: 1. Typhus fever has been observed in Annam in natives who recently arrived from Tongking. 2. It manifested itself in accordance with the classic description, except that the eruption was wanting. 3. The direct inoculation of blood from man to man has reproduced the disease after an incubation period of from 14 to 21 days. 4. Typhus fever seems to be a blood disease transmitted to man by bites of insects.

Journal of Nervous and Mental Disease, New York.

June.

72 *Mental State in Chorea. C. W. Burr, Philadelphia.
73 Symptom-Complex of Occlusion of Posterior Inferior Cerebellar Artery. W. G. Spiller, Philadelphia.

72. Abstracted in THE JOURNAL, June 20, 1908, p. 2104.

Illinois Medical Journal, Springfield.

June.

74 Opsonins and Vaccines in Tuberculosis. G. B. Webb, Colorado Springs, Colo.
75 Present Status of the Treatment of Tuberculosis in Illinois. J. W. Pettit, Ottawa, Ill.
76 General Aspects of Psychotherapy. J. Grinker, Chicago.
77 *Experimental Studies on Round Ulcer of Stomach and Duodenum. F. B. Turck.
78 Analysis and Modification of Mother's Milk. T. W. Gillespie, Peoria, Ill.
79 Prevention of Childbed Infections. H. LeSaulnier, Red Bud, Ill.
80 Should Druggists Manufacture and Dispense and Should Doctors Dispense? H. E. Irish, Chicago.
81 *Removal of Patella for Ununited Comminuted Fracture. C. C. Rogers, Chicago.
82 Three Cases of Cesarean Section. V. J. Baccus, Chicago.
83 *Exudative Diathesis. C. G. Grulee, Chicago.

77. Published in the *Journal of Medical Research*, February, 1908, and abstracted in THE JOURNAL, April 4, 1908, p. 1149.

81. **Removal of Patella.**—Rogers reports a case in which he removed the patella for ununited comminuted fracture, and describes the method adopted, which differs from Murphy's operation (*Surgery, Gynecology and Obstetrics*, March 1908; abstracted in THE JOURNAL, May 2, 1908, p. 1458) in that Rogers unites only the anterior half of the quadriceps extensor, instead of a lateral half, including some of the muscle to the patellar tendon. He does not suture the muscles together. The flap is made flat, smooth, and broad enough to cover the space left by the removal of the patella, instead of circular and narrower.

Rogers gives the following conclusions: 1. The patella is unessential for a flexible knee-joint. 2. The patella can be removed when ununited and perfect flexion and extension procured. 3. The patella should be removed when ununited or when repeated fracturing occurs. 4. When there is cartilaginous union and extension is lost, function can be restored by removing the patella and joining the quadriceps tendon to the patellar tendon. 5. By removing the patella the patient is confined to bed but a short time compared to the time required after strapping with adhesive or after wiring. Rogers acknowledges his indebtedness to Murphy for the idea.

83. **The Exudative Diathesis.**—Grulee discusses the condition described by Czerny of Breslau as the exudative diathesis. It may show its earliest manifestations in the first weeks of life, and usually continues until puberty or after. It occurs in the poorer classes, those who have removed from country to city, in both thin and frail and apparently robust babies. In spite of insufficient breast milk, the child does not obtain its initial weight until from two to four weeks after birth; it then gains rapidly, but never becomes normal. The geographical tongue is a certain indication if present. The skin manifestations include the "cradle cap," a yellowish-gray desquamation in the region of the large fontanel, milk eczema intertrigo, the respiratory symptoms—viz., repeatedly recurring asthma, which Czerny regards as acute bronchitis, its severity dependent on the nervous irritability of the child. The most important point is lymphatic enlargement of the pharynx, the result of repeated irritation due to recurrent infections of the mucous membrane, and not in themselves predisposing to infection. The cervical glands are enlarged. Pseudocroup may occur, especially in fat children. Treatment consists in regulation of diet, avoidance of infection, and training of the nervous system, avoidance of overfeeding, reduction of fat to a minimum (but the children stand carbohydrates well), largely vegetarian diet after the first year, open air life. Drugs are worse than useless. As regards the indiscriminate removal of tonsils and adenoids, Grulee considers it unnecessary; on which point he considers the opinion of the general practitioner, who sees the after-effects, as of more value than that of the specialist.

Southern California Practitioner, Los Angeles.

June.

84 *The Negro Consumptive. C. R. Grandy, Norfolk, Va.
85 *The Negro's Outlook for Health. B. Warner, New Orleans.
86 The Nation's Outlook for Health. W. Lindley, Los Angeles.
87 *Accouchement Forcé. E. M. Lazard, Los Angeles.
88 *Treatment of Gonorrhea in Females. A. J. Downs, Los Angeles.
89 Dermatitis Exfoliativa Neonatorum. U. G. Miller, Los Angeles.
90 Hydrotherapeutics. J. B. Cook, Los Angeles.
91 Ventral Hernia. H. G. Marxmiller, Los Angeles.

84. **The Negro Consumptive.**—Grandy asks: Is there a physical predisposition or lack of resistance to tuberculosis in the negro? Or is the predisposition rather a mental one, in that he is unable to rise up to meet the conditions which face him? Or are these adverse conditions forced on him on account of racial prejudice? He answers that, while there are physical peculiarities that act against the negro in his fight against tuberculosis, these factors are not so certain as poor housing, overcrowding, lack of ventilation, and insufficient nourishment, and back of these poverty, ignorance, thriftlessness, and vice. These, when applying to the greater part of a race, must be due either to a mental unfitness to combat the existing situation, or to its being forced into them through the prejudices of another race. He discusses this question and concludes that there is a mental predisposition in the negro which renders the tuberculosis problem more difficult with him than with the white. He does not believe that the tremendous consumption mortality is due to racial prejudice. He urges a return to country life, the provision of day nurseries and kindergartens, and proper tenement-house laws.

85. **The Negro's Health.**—Warner quotes a leading negro educator for the statement that health conditions among the negroes show a decided improvement on what the conditions were for some period after the war. He himself, however, considers that the outlook for the future of the negro is ill, and, in addition to the factors mentioned by Grandy in the preceding abstract, he singles out the use of cocain, the prevalence of immorality which is not affected by education, and the results of miscegenation as factors.

87. **Accouchement Forcé.**—Lazard believes that in the presence of conditions necessitating rapid delivery, metallic dilatation, properly and carefully done, can with advantage replace both manual dilatation and deep surgical incision. It takes less time, absolute asepsis is easier, and it is not so exacting as regards technical skill, while it results in less trauma to the tissues. Placenta prævia cases are excepted.

88. **Gonorrhea in Females.**—Downs recommends filling the vagina with some antiseptic solution by means of a hand syringe such as is used on the male, the patient being on her back. The ureter is cocainized and the canal touched with the silver nitrate solution from 3 per cent. up. Skene's glands

are probed, if necessary, with silver nitrate. The labia are separated and the solution is absorbed with cotton. Ten per cent. silver nitrate on cotton is applied to the cervix externally and as far as the internal os. The glands of Bartholin must be treated like Skene's glands, if necessary. For infection of the uterus and tubes, rest in bed, large hot douches, heat to the lower abdomen; morphin for pain and saline cathartics to relieve pelvic congestion. An operation may be necessary.

St. Louis Medical Review.

June.

92 *Bacteriologic Study of Acute Articular Rheumatism. J. W. Marchildon, St. Louis.
93 Physical Treatment of Constipation. O. Juettner, Cincinnati.
94 Diphtheritic Paralysis. J. V. Shoemaker, Philadelphia.
95 Incorrect Phraseology in Medical Writings. A. L. Benedict, Buffalo.
96 Surgery of the Ureter. B. M. Ricketts, Cincinnati.

92. **Acute Articular Rheumatism.**—Marchildon discusses the bacteriology of this condition in general and the literature thereon, and gives the findings in five cases under his own observation. He concludes: My results are in accordance with those of many observers who believe that streptococci can not be isolated from the blood or joint fluid in cases that recover. More work and especially new methods may explain the failures of the present time.

Denver Medical Times.

June.

97 Treatment of Tabetic Ataxia by Frenkel Method. E. W. Lazell, Denver.
98 *Anatomy of the Hymen. E. S. McKee, Cincinnati.
99 Infection in the Right Upper Abdominal Quadrant. C. E. Tennant, Denver.
100 Three Interesting Cases of Morphinism. J. H. McKay, Denver.
101 Recent Advances in Diagnosing, Treating and Combating Epidemic Meningitis. V. Thompson, Littleton, Colo.

98. Practically the same article appeared in the *Lancet-Clinic*, March 7, 1908, and in the *American Journal of Obstetrics*, March, 1908, and was abstracted in THE JOURNAL, March 28, 1908, p. 1077.

Utah Medical Journal, Denver.

June.

102 The Physician as a Teacher. J. C. Cutler, Governor of Utah.
103 Instruction in Hygiene—a Necessity for Both Teachers and Scholars. J. W. Aird, Provo, Utah.

Pennsylvania Medical Journal, Athens.

June.

104 Progressive Pernicious Anemia. Diagnosis and Treatment. D. S. Funk, Harrisburg.
105 *Relation of Pernicious Anemia to Digestive Tract. J. D. Steele, Philadelphia.
106 Pernicious Anemia. A. S. Harshberger, Lewistown.
107 Diseases of Gall Bladder and Ducts. J. B. Deaver, Philadelphia.
108 *Imbecility and Crime and Legal Restraint of Imbeciles. C. W. Burr, Philadelphia.
109 Cosmetic Eye Surgery. W. C. Posey, Philadelphia.
110 *Referred Pain. W. L. Estes, South Bethlehem.
111 *Postoperative Femoral Phlebitis. G. W. Guthrie, Wilkes-Barre.
112 *Suppurative Parotitis Following Abdominal Operations. W. E. Parke, Philadelphia.
113 Total Extirpation of Diseased Tonsils; Importance and Method. G. M. Marshall, Philadelphia.
114 Injuries of the Eye by Foreign Bodies. W. M. Sweet, Philadelphia.
115 The Pennsylvania State Medical Society To-day. C. A. R. McClain, Mt. Union.

105. **Relation of Pernicious Anemia to the Digestive Tract.**—Steele discusses the confusion of progressive pernicious anemia proper with the severe anemias of gastric cancer, atrophy of the gastric and intestinal mucous membrane, parasitic anemias, the products of intestinal putrefaction, lowered gastric secretion, and infection having its origin in sepsis of the mouth, stomach and intestine. He concludes that the relations between disorders of the digestive tract and progressive pernicious anemia are complex and obscure. There is no proof that there is any causal relation between them. On the other hand, the connection that seems to exist between certain conditions in the digestive tract and severe anemia suggests that toxemia or other disturbances arising in the digestive tract may play a more important part in the etiology of progressive pernicious anemia than we think at present. The discrepancies and lapses in the chain of evidence as to the cause of the disease are best explained by the theory of individual predisposition.

108. **Imbecility and Crime.**—Burr says that imbeciles of criminal instincts are incorrigible, and they should be kept under the restraint of institutional life and not act as an incubus, not to say contamination, to the other children of the family. The removal from institutions of imbeciles of all types, criminal or not, should be made more difficult, and the imbecile with criminal instincts should receive no purely intellectual training and should be kept in an institution for life. The ideal method would be to segregate them on state farms, large in extent, far from great cities, and isolated from the world, from the time that they begin to show vicious tendencies.

110. Abstracted in THE JOURNAL, Nov. 2, 1907, p. 1549.

111 and 112. Abstracted in THE JOURNAL, Oct. 26, 1907, p. 1465.

Northwest Medicine, Seattle, Wash.

June.

116 Arteriosclerosis. H. W. Howard, Prosser, Wash.
117 Ectopic Gestation. S. H. Johnson, Bellingham, Wash.
118 A Plea for More Care in the Early Diagnosis of Uterine Cancer. J. B. Eagleson, Seattle, Wash.
119 *Therapeutics. L. R. Markley, Bellingham, Wash.

119. Abstracted in THE JOURNAL, Oct. 12, 1907, p. 1304.

Journal of the Arkansas Medical Society, Little Rock.

May.

120 Use of Laboratory Methods by the General Practitioner. F. B. Young, Springdale.
121 Uncinariasis. A. G. McGill, Chidester, Ark.

Journal of Ophthalmology and Laryngology, Chicago.

June.

122 Migratory Ophthalmia in its Relation to Injuries of the Globe. H. W. Woodruff, Joliet, Ill.
123 Sub-Pterygial Cysts. H. True and A. Bonnet, Montpellier, France. Translated by B. F. Andrews, Chicago.
124 Treatment of Hemorrhage After Operations on the Nose, Naso-Pharynx and Tonsils. O. Wilkinson, Washington, D. C.
125 Case of Xanthoma, with Exhibition of Patient. J. E. Rhodes, Chicago.

West Virginia Medical Journal, Wheeling.

June.

126 Diabetes Considered from a Surgical Standpoint. N. Jacobson, Syracuse, N. Y.
127 *Mission of the Physician. G. D. Lind, New Richmond, Va.
128 Appendicitis—its Clinical Aspect. W. W. Golden, Elkins.
129 Sunshine and Bacteria. F. Howell, Clarksburg.
130 *Protection from Malpractice Suits. H. G. Nicholson, Charleston.
131 Treatment of Diarrhea. R. H. Edmondson, Morgantown.

127 and 130. Abstracted in THE JOURNAL, June 6, 1908, p. 1933 and 1934.

Yale Medical Journal, New Haven.

June.

132 Nature of Shock. C. H. Lemon, Milwaukee.
133 Surgical Treatment of Cystitis. E. L. Keyes, Jr., New York.
134 Tuberculosis Situation in Connecticut. D. R. Lyman, Wallingford, Conn.

Alabama Medical Journal, Birmingham.

June.

135 Psychotherapy. C. Lull, Birmingham.
136 Forms of Dystocia. J. E. Jenkins, Piper, Ala.
137 Pathology of the Summer Diarrheas of Infancy and Childhood. W. R. Ward, Birmingham.
138 Prophylaxis and Treatment of Diarrheas of Children in Summer, and Gastric Disturbances. H. Johnston, Birmingham.
139 Treatment of Chronic Prostatitis. C. W. Shropshire, Birmingham.

Montreal Medical Journal.

June.

140 The Treatment of Infective Diseases by Bacterial Vaccines. F. G. Bushnell, Brighton, Eng.
141 "Hepatic Toxemia."—"Fatal Acetonemia." E. J. Williams, Sherbrooke.
142 Ambroise Paré—Man and Surgeon. W. G. Turner.
143 Medicine in Canada. M. Charlton. (To be continued.)
144 Duodenal Ulcer: its Diagnosis and Surgical Treatment. A. E. Garrow, Montreal.

Bulletin Johns Hopkins Hospital, Baltimore.

June.

145 Avicenna and Arabian Medicine. J. A. Chatard, Baltimore.
146 The Kern-Plasma Relation Theory. W. T. Howard, Cleveland, Ohio.
147 Fritz Schaudinn. O. T. Schultz, Cleveland, Ohio.
148 Methods of the Henry Phipps Institute for Tuberculosis. J. Walsh, Philadelphia.

Journal Cutaneous Diseases, New York.

June.

149 *X*-Ray Baths and Dermametropathism. H. Lawrence. Melbourne, Australia.
150 Experience with the White and Blue Light of the Quartz Lamp. E. Kromayer, Berlin.
151 Acquired Ichthyosis. J. P. Kanoky, Kansas City, Mo.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London.

July 11.

1 *Inborn Errors of Metabolism. A. E. Garrod.
2 *Necessity for Appendicectomy After Perityphlitic Abscess. W. H. Battle
3 Sarcomatosis of Lymphatic Glands. W. K. Hunter.
4 The Premonitory Signs of Arteriosclerosis. A. S. Gubb.
5 *The State of the Autonomous Nervous System in Acute Surgical Conditions. A. J. Walton.
6 *Method of Facilitating Intralaryngeal Operations. C. Horsford.
7 The Child in School Medical Examination. A. D. Edwards.
8 A Visit to Professor Wertheim's Clinic in Vienna. A. H. N. Lewers.

1. **Metabolism.**—In the second Croonian lecture Garrod discusses alkaptonuria at length, and states that the error of metabolism which is at the back of alkaptonuria is a failure to deal with the aromatic fractions of proteins in the ordinary way, and that both the proteins of the food and those of the tissues are implicated in the error. It is necessary to consider, therefore, what is known as to the ordinary way of dealing with these fractions. So far as the available evidence goes, it tends to show that there is only one degree of alkaptonuria, and that from a given quantity of a certain protein all subjects of the anomaly tend to form and to excrete the same amount of homogenetic acid, and it is probable that that quantity is a maximal one, seeing that Falta has shown that the output of homogentisic acid corresponds roughly to the estimated amounts of the aromatic fraction in the proteins broken down. Two explanations are possible of the fact that alkaptonuries excrete homogentisic acids, whereas normal persons do not: either the alkapton acid is a strictly abnormal product formed by a perverted metabolism of tyrosin and phenyl-alanin, in virtue of which these protein fractions experience a wholly different fate from that which overtakes them in the normal organism, or it is an intermediate product of normal metabolism, which is usually completely destroyed and does not come to excretion, but which in alkaptonuria escapes destruction. He discusses these explanations, and holds that at present the evidence in favor of the theory of it being an intermediate product far outweighs that which can be brought against it.

2. **Perityphlitic Abscess.**—Battle holds that the treatment of perityphlitic abscess is most safely carried out in two stages: First stage, evacuation of pus and drainage; second stage, removal of the appendix. He insists on this last because, he says, the statements of those who held that the appendix was obliterated by suppuration around it were erroneous; it is never obliterated, but remains the subject of gross disease, which in many instances (20 out of 70) gives rise to a return of symptoms within a short period after the closure of the abscess.

5. **The Autonomous Nervous System in Surgical Conditions.**—Walton, in an article begun in the *Lancet* of July 4, aims at decreasing the present high mortality existing in cases of acute surgical lesions necessitating immediate operations. Two main conditions are considered: 1, alterations in the vasomotor centers, with subsequent vascular changes; 2, changes in the local nervous system of the intestines after abdominal operations. In the first category he groups the conditions of shock and collapse, the active factor in both being lowered blood pressure. He discusses at length the recent work on the subject, paying special attention to the length of the operation, anesthetics, ether, chloroform, spinal anesthesia, and the loss of blood and other fluids. The treatment he divides into preventive and curative. He summarizes the treatment into perfecting the patient's general condition, the use of Crile's pneumatic suit, the prohibition of any form of stimulant, either previous to or during the course of any operation, the administration of 15 minims (1 c.c.) of B. P. hypodermic injection of ergot, which may be repeated after its effects begin to fail (probably in about twenty minutes), the injection of a 2 to 4 per cent solution of cocain into any large nerve before division, and avoidance of unnecessary exposure or handling of deep-seated organs, especially the abdominal viscera. The operating room should be warm, but not too hot. After the operation is completed a tight abdominal binder should be applied to contract the splanchnic area. When the patient has been returned to bed the following method may be carried out by routine, provided none of its steps has had to be undertaken during the course of the operation: The patient is immediately given a quarter of a grain of morphin, so that on recovering from the effects of the anesthetic the pain will not be appreciated by the controlling centers. At the same time the foot of the bed is raised about 1½ to 2 feet higher than the head end. Fifteen minims of ergot are now injected subcutaneously while the saline solution and suprarenal extract for continuous irrigation of the rectum are being prepared. As soon as possible this is commenced and allowed to run continuously at the rate of one pint an hour until either the fluid is rejected or five to six pints have been administered. If the case is one of septic peritonitis, the foot of the bed is lowered after two or three hours, and after a further two or three hours the head is raised. Under the second head he says that just as multiple afferent impulses to the centers governing the muscular apparatus of the vessels cause their exhaustion, with loss of tone to the vessels and consequent dilatation, so also multiple impulses from the intestines cause exhaustion of that apparatus governing the muscular movements of their walls, with consequent paralysis of these walls and apparent obstruction.

He discusses the physiology of peristalsis, and summarizes the treatment of the second class as follows: In cases of acute paralysis, due to some toxic condition present within the peritoneum, the intestines should be drained as freely as possible during the course of the operation undertaken for the relief of the local condition. In all other conditions no operation is called for, and, since the state of the intestines depends on the exhaustion of the centers, any form of stimulation is only likely to do harm. Immediately after operation, injection of 1/100th of a grain of eserin salicylate should be given, which may be continued four-hourly until six doses have been taken. If no action of the bowels occurs next day, a turpentine enema may be given. This line of treatment, of course, applies only to those cases in which it is considered beneficial to keep the bowels open. The effect of any severe operation on the autonomous nervous system consists of exhaustion of its centers, both central and local, and treatment must aim to rest them. Since in man exhaustion always occurs first in the nervous system, treatment of the symptoms should aim at stimulating the local organs to act alone until the centers are again able to undertake control.

6. **Intralaryngeal Operations.**—Horsford advocates passing a suture through the epiglottis, the ends of the suture being brought over the center of the tongue and gripped by a Spencer-Wells forceps, the weight of which pulls the epiglottis forward against the root of the tongue and usually quite out of the way. The patient holds the tongue in the ordinary manner. Horsford has had an instrument made for the purpose, and describes the method of its use in three cases.

British Medical Journal, London.

July 11.

9 *Etiology of Pulmonary Tuberculosis. Sir. W. Whitla.
10 *Congenital Stenosis of Pylorus in the Adult. W. Russell.
11 *Congenital Narrowness of the Pylorus, a Cause of Chronic Gastric Disease in Adult. A. E. Maylard.
12 Gastroenterostomy for Non-Malignant Disease. C. M. Moulin.
13 Tetany in the Adult. J. A. Gibb.
14 *Mucous Colitis and its Relationship to Appendicitis and Pericolitis. A. Mantle.

9. **Tuberculosis.**—In the Cavendish lecture Whitla discusses, first, the relation between human and bovine tuberculosis, of which he considers the identity practically proved (commented on editorially in THE JOURNAL, August 1, p. 410), and, second, the portal of entrance of the tubercle bacillus, which, he says, the experiments of Calmette and Guérin have shifted from the site of the pulmonary alveoli to that of the intestinal epithelium. Whitla describes a series of experiments undertaken by Professor Symmers and himself to put

this conclusion to the test. In the first experiment China ink in suspension was injected into the large vein of the ear of a rabbit. On killing the rabbit an hour later the ink was found extensively deposited through the lungs. In the second, a guinea-pig was fed with a similar emulsion, a tube being used to avoid contamination by the nasal and oral cavities, and was then killed. The lungs were found to be engorged with carbon. In the third, similar injections into the peritoneal cavity in the adult guinea-pig produced a similar carbon infiltration of the lungs, although the abdominal lymphatic glands were free from pigment. The particles, therefore, must have passed through the mesenteric glands, becoming arrested in the pulmonary capillaries. Vansteenberghe and Grysez, however, in similar experiments with young guinea-pigs, found that the particles "entered the lymph paths, as in the case of the adult animals, but were at once filtered out by the mesenteric glands, so that the lungs remained free from pigment, while the glands were deeply infiltrated. Vansteenberghe and Grysez also submitted rabbits and guinea-pigs to the inhalation of carbon particles by confining them in glass boxes containing a burning turpentine lamp. But while, on killing the animals, the upper air passages—and, when the experiment was of long duration, even a few of the pulmonary alveoli—were found laden with pigment, in no case was carbon found in the parenchyma of the lung. An important experiment consisted in leaving the digestive tract open, doing a low tracheotomy, and blocking up one lung completely with cotton wool. The animals were then exposed to prolonged inhalation of carbon, as in the foregoing experiment. On killing them and examining the lungs, while the free lung showed carbon deposits in the bronchi and external portions of the alveoli, as well as in the parenchyma, the blocked lung showed only intraparenchymatous deposits, the bronchi and alveoli being free from pigment, thus indicating the route of parenchymatous infiltration to be through the blood stream. Guérin and Breton injected a fine emulsion of living bacilli through the esophageal tube into the stomachs of guinea-pigs and produced extensive tuberculous deposit in the mesenteric glands, lungs, and other viscera. When the animals lived for thirty days the lungs were always tuberculous; when for sixty days the deep cervical glands also. Examination of guinea-pigs thus treated and killed within ten days showed the entire lymphatic system already affected. In view of the facts that the great majority of the cases in which bovine bacilli have been found in the human have occurred in children, and that it is in abdominal tuberculosis that bovine bacilli have generally been found, the obvious conclusion is that the bovine bacilli gained an entrance to the stomach through the milk of tuberculous cows. Symmers and Whitla, in another experiment, combined two methods by rubbing up large doses of a living culture of bovine bacilli with powdered China ink, olive oil and water, to the consistence of thin cream. This was introduced through a catheter into the stomachs of adult guinea-pigs, which were killed at periods from four to twenty-four hours later, and the lungs and viscera examined. In six out of eight cases a smear from different parts of the lungs showed tubercle bacilli, though always sparse, lying among abundant carbon particles. The mesenteric and ileocolic lymphatic glands contained numerous tubercle bacilli with carbon particles, obviously on their way to the lungs. The histologic differences between the mesenteric glands of the young and the adult animal readily explain these results and those of Vansteenberghe and Grysez.

Whitla finally relates a series of outbreaks of cervical adenitis that occurred among school children in an isolated rural community, and were traced to the milk supply. Each series contained also cases of other forms of tuberculosis, including phthisis. Finally, he lays stress on the important part played by lowered vital resistance, and concludes that probably at no distant date the contention of Calmette will be accepted, that in the immense majority of cases pulmonary tuberculosis is not contracted by inhalation, but, as taught by von Behring, the germs enter through the intestinal tract. "Further research," he adds, "may explain how in China, where the consumption of the milk of bovines is practically nil, tuberculosis is everywhere present among the natives."

10. **Congenital Stenosis of Pylorus.**—Russell first summarizes our knowledge as to pyloric stenosis in general, discussing the causes, the relation to it of pyloric spasm, and the effects of pyloric stenosis. He approaches the consideration of congenital stenosis as an additional cause of pyloric obstruction in the adult by discussing it from the historical side. He refers to the recognition of hypertrophic pyloric stenosis in infants as a pathologic fact and a clinical entity, and concludes that there are degrees of stenosis and that a pyloric stenosis is not incompatible with infant life; that, in spite of its presence, life may be continued into childhood, and even onward. It seems inexplicable to him that there is no recognition in infancy of what Maier calls simple stenosis, and the fact that this condition is recorded on the operating table in children as young as 6 indicates a clinical hiatus that should not be difficult to fill. He discusses the literature of the present medical and surgical position, and holds that the occurrence of congenital stenosis in the adult must be accepted as an established fact. He reports three cases, and discusses the diagnosis, treatment and clinical pathology.

11. **Idem.**—Maylard adds to his cases published in the *British Medical Journal*, volume i, 1904, page 417, twelve additional cases substantiating the views formerly advanced by him, and concludes that: 1. There exists an abnormal condition of the pyloric aperture, of probably congenital origin, which consists in an undue narrowing of the orifice, varying anything between 2 or 12 mm. 2. The condition is more frequently met with in women than in men, and that the age at which the symptoms first appear depends on the narrowness of the aperture and the general physical or constitutional condition of the patient. 3. The narrowness leads to a more or less chronic condition of indigestion, manifested in various forms, and often mistaken for chronic ulceration of chronic gastric catarrh; that in the early stages relief is afforded by careful and strict attention to diet, but that any attempt to return to normal feeding causes a recrudescence of indigestion. The attacks of gastric discomfort are at first separated by considerable intervals, but these lessen in length as time goes on. 4. When the patient is advanced in life and shows marked general debility, operation will prove of doubtful value. 5. Barring such considerations as those mentioned in paragraph 3, pyloroplasty or Finney's operation—preferably the former—should be practiced.

14. **Mucous Colitis.**—Mantle discusses mucous colitis and refers especially to the arthritic symptoms, to mucous colitis simulating appendicitis, appendicitis following mucous colitis, and also as a cause of it, and to mucous colitis as a cause of pericolitis. He describes the irrigation method of treatment in use for several years in France, and at Harrogate, in England, and states that the treatment has been most successful, as well as educational to the patient.

Medical Press and Circular, London.

July 8.

15 Abdominal Injuries. W. H. Clayton-Greene.
16 *The Etiology of Pulmonary Tuberculosis. Sir W. Whitla.
17 The Austrian Tyrol as a Health Resort. D. Walsh.
18 Intermittent Claudication (Angina Crusis). B. Bramwell.

16. See abstract No. 9.

Clinical Journal, London.

July 8.

19 Acute Tuberculous Peritonitis in Adults. W. P. Herringham.
20 General Suppurative Peritonitis. L. McGavin.

British Journal of Children's Diseases, London.

July 1908.

21 Cases of Intussusception. H. S. Clogg.
22 *Erythrodermia Desquamativa (Universal Dermatitis of Children at the Breast). C. Leiner.
23 Acute Affections of the Lungs in Children. T. Fisher.
24 Unusual Case of Acute Leucocytic Pleuropneumonia, with Extensive Fibrinous Plugs Visible to the Naked Eye in Enlarged Lymphatics. G. Carpenter.

22. **Erythrodermia Desquamativa.**—Leiner draws attention to a skin disease spreading all over the body, presenting a special type, of which he has observed 43 cases at the Carolinen Children's Hospital, Vienna, of which 41 were breast

nourished and 2 bottle fed. Of these, 28 were cured, 15 died. The disease consists of a slight inflammation of the whole cutis, a desquamation of the epidermis and a seborrhea of the scalp. It is a real inflammation of the skin and rarely attacks others than infants. The etiology is not clear, but Leiner suggests that it is probably an autotoxic erythema, occurring in connection with intestinal troubles. It must be carefully distinguished from the dermatitis exfoliativa of Ritter.

Annals of Tropical Medicine and Parasitology, Liverpool.

June 9.

25 Reports of the "Sleeping Sickness" Expedition to the Zambesi for the Years 1907-1908. A. Kinghorn and R. E. Montgomery.
26 Incidence and Prophylaxis of Human Trypanosomiasis in Northeastern Rhodesia. A. Kinghorn and R. E. Montgomery.
27 Trypanosomiasis of Domestic Stock in Northwestern Rhodesia. R. E. Montgomery and A. Kinghorn.
28 Work of the Greek Antimalaria League During the Year 1907. M. Hadjimichalis and J. P. Cardamatis.

Dublin Journal of Medical Science.

July.

29 Generalized Vaccinia and its Pathology. R. S. Oldham.
30 Calmette's Ocular Reaction to Tuberculin. G. B. M'Hutchison.
31 Pathology and Treatment of Epulis. C. G. Cumston, Boston.

Journal of Laryngology, Rhinology and Otology, London.

July.

32 Clinical Pathology of Aural Discharges. W. Wingrave.
33 Noise Apparatus for Detection of Unilateral Deafness. R. Bárány.
34 Fatal Case of Cavernous Sinus Thrombosis Following Chronic Purulent Otitis. H. Hanna.
35 Laryngostomy and Tracheo-Laryngostomy for Stenosis of Larynx or Trachea, Especially Cicatricial. Sargnon and Barlatier.

Bulletin de l'Académie de Médecine, Paris.

June 30, LXXII, No. 26, pp. 745-799.

36 *Local Anesthesia. (L'Anesthésie locale et les nouveaux anesthésiques locaux.) P. Reclus.
37 Preventive Antitoxin Treatment of Tetanus. L. Labbé.
38 *Precautions before Descending into Wells, etc. (Précautions à prendre avant de laisser pénétrer des ouvriers dans des fosses ou des puits.) N. Gréhant.
39 *Aneurism of Aorta compressing the Heart and Vessels at its Base. E. Boinet.

36. **Local Anesthesia.**—Reclus is an ardent advocate of local rather than general or spinal anesthesia, and states that with it he has performed ten thousand operations without a fatality—with scarcely any disturbance in the physiologic balance. He prefers a mixture of 25 per cent. cocain and 75 per cent. stovain for the local anesthesia, and recently amputated an arm with this technic without any complaints on the part of the patient. Local anesthesia, he declares, should be the rule for operations on the fingers and toes, anal and external genital regions, for gastrostomy, herniotomy and kelotomy, and whenever the condition of heart, kidneys or lungs contraindicates general anesthesia. Analysis of the fatalities from spinal anesthesia on record shows that the operations might have been done under local anesthesia just as well. The reason the latter is unpopular is, he believes, because the technic of local anesthesia differs so widely in the individual cases, with the region, the tissues and the condition of tissues, so that each operation requires, as it were, a special technic. Another reason is that the surgeon must attend to the local anesthesia himself, instead of turning it over to an assistant, and that he is inclined to shirk this task.

38. **Precautions Before Descending Into Wells, Pits, Etc.**—Gréhant reiterates his former assertions in regard to the necessity for letting down some small animal in a cage before allowing workmen to descend into a suspicious pit or well. If the animal is breathing normally when drawn up again after half an hour, the workmen can descend without fear. If not, the fire department should be called on to apply their ventilating apparatus which soon renovates the air. He relates a number of experiments showing the effect on guinea-pigs of various dilutions of gases.

39. **Aneurisms of the Aorta Compressing the Heart and Vessels of the Base.**—Boinet gives an illustrated description of two cases of multiple aneurisms in the intrapericardial part of the aorta, emphasizing the contrast between the lack of sufficient physical signs and the predominance of functional disturbances from compression of the vessels and cavities of the base of the heart.

Presse Médicale, Paris.

July 1, XVI, No. 53, pp. 417-424.

40 *Necessity for Early Electric Treatment in Reflex Atrophies. A. Zimmern.
41 *Salt and the Gastric Secretion. A. Martinet.

July 4. No. 54. pp. 425-432.

42 *Revised Conceptions of Hysteria. (Revision de l'hystérie à la Société de Neurologie de Paris.) H. Meige.

July 8, No. 55, pp. 433-440.

43 Resistance of Tubercle Bacilli to Acids and Alcohol. J. Auglair.
44 The Question of Diabetes Produced by Adrenalin. G. Makaroff.
45 Empyema of Maxillary Sinus of Dental Origin. G. Mahé.
46 *Management of Transverse Presentation. (Présentations de l'épaule.) J. Rouvier.
47 Diminution of Vesicular Murmur at Right Apex. (Diminution du murmure vésiculaire au sommet droit.) Montéli and Cornillot.

40. **Necessity for Early Electric Treatment of Reflex Atrophies.**—Zimmern declares that an atrophied muscle, as, for example, in atrophy of the extensor muscles of the knee with hydrarthrosis, is unable to stand any strain. Even the weight of the leg is too much for the frail muscle which has lost much of its tonicity. There is danger of injuring the still vulnerable synovial membrane and of the return of the effusion. Application of electricity is the only means by which this functional inertia can be combated without harm. This applies especially to the reflex atrophy of the posterior bundles of the deltoid in lesions of the shoulder. Isolated contraction of the deltoid can be obtained only by localized electrization, as is also the case with the peroneus longus. Any treatment which defers the return of functional activity to the muscle exposes to the danger of consecutive atrophy; it should resume its work with the minimum of energy, which is the contraction induced by electric stimulus alone.

41. **Salt and the Gastric Secretion.**—Martinet relates some experiences which show that salt favors gastric secretion in man. The local action of salt on the gastric secretion is inhibiting or stimulating according to the habits (carnivora or herbivora), according to the anomalies of the gastric secretion, and according as the salt is given alone or mixed with the food. In his experiments he tested the action of salt by L. Meunier's technic. This is the swallowing of a capsule containing ether, the capsule tied with catgut in a square of thin rubber. As the catgut is digested the little bag opens, the capsule becomes dissolved and the ether escapes, causing an eructation with the odor of ether. The activity of the gastric juice is evidently in inverse proportion to the length of time required for the digestion of the catgut. It is a familiar fact that the addition of salt to the food at the beginning of a meal stimulates the appetite—physiology confirms the precepts of instinct. It has been shown that prolonged suppression of salt in the diet reduces the pain and the vomiting in hyperchlorhydria, while salt given in abundance stimulates secretion of hydrochloric acid. A healthy man tested by the Meunier technic had the ether eructation at the same time with milk and meat—in from 80 to 85 minutes—with and without salt, while the digestion with soft-boiled eggs and with boiled rice was delayed from 10 to 20 minutes when no salt was eaten with them. Repetitions of the test gave the same results each time.

42. **Revised Conceptions of Hysteria.**—Meige states that the work done in this line at the latest French and international neurologic congresses has been inconclusive, but the matter has been recently illuminated at a symposium of the Paris Neurologic Society. The objective facts presented confirm the assumption that the alleged stigmata of hysteria have no pathognomonic value and are merely the results of suggestion, generally of medical origin. Also that modifications of the tendon and pupil reflexes do not belong to the symptomatology of hysteria. Babinski has reconstructed out of the ruins of the old conceptions of hysteria his new definition of it as a special psychic state manifesting itself in disturbances

distinguished by the fact that it is possible to reproduce them by suggestion in certain persons and to cause them to disappear under the exclusive influence of persuasion. He would exclude from the conception of hysteria the so-called hysteric fever, hemorrhages, etc, their alleged hysteric origin being non-proven to date.

46. **Technic for Management of Transverse Presentation.**—Rouvier calls attention to the necessity for substituting the breech for the shoulder in formulating the indications in shoulder presentation. He gives two simple rules to facilitate artificial delivery in transverse presentation: With the obstetric patient in the dorsal or lateral position, lying on the same side as the fetal breech, if the breech is on the right, the physician should be on the right side of the patient and use his right hand for podalic version. If the breech is on the left side, he should be on the left side and use his left hand. In exceptional cases, as of occipito-posterior position in a uterus with pronounced anteversion, if the above technic fails, he turns the patient on her other side and uses his other hand, without changing his position.

Revue de Médecine, Paris.

June XXVIII, No. 6, pp. 505-584.

48 *Myoclonia in a Case of Meningo-encephalomyelitis. (Myoclonie chez un vieillard.) J. Paviot and L. Nové-Josserand.
49 Pathologic Anatomy of Solar Plexus in the Tuberculous. Laignel-Lavastine.
50 *Symmetrical Lipomatosis. Roch.
51 *Autosuggestion in Neurasthenia. P. Hartenberg.

48. **Pathologic-Anatomic Findings in Myoclonia.**—The autopsy findings in the case reported seem to be identical with those characteristic of chronic chorea, and the authors say that it is the first anatomic demonstration of the close relationship between myoclonia and chorea. The chronic meningo-encephalomyelitis showed interstitial and pericellular infiltration of round cells. The reflexes were normal or exaggerated and the mind did not seem to be affected. The patient was a man of 66 who had died from an intercurrent affection.

50. **Symmetrical Lipomatosis.**—Roch discusses the various forms and summarizes twenty-seven cases on record, dwelling especially on the form in which multiple circumscribed and painless lipomata occur on the forearms, thighs and waist. There seems to be a familial and hereditary tendency in this form, suggesting that it is a manifestation of defective development. He points out the features which distinguish it from symmetrical pseudolipomatosis, cervical adenolipomatosis, diffuse symmetrical lipomatosis and adiposis dolorosa. In a case personally observed the patient was a man of 65 with chronic nephritis. In all the cases on record the tumors were noted in childhood or first after some infectious disease; there was never any causal local trauma or nervous affection.

51. **Autosuggestion in Neurasthenia.**—Hartenberg presents evidence to disprove the assumption that the symptoms in neurasthenia are the results of autosuggestion. Those who believe this assumption have failed to differentiate neurasthenia from various neuropathies. The term neurasthenia, he says, should be reserved for the syndrome of nervous depression, and in this autosuggestion plays a subordinate rôle.

Semaine Médicale, Paris.

July 8, XXVIII, No. 28, pp. 325-336.

52 *Fatal Asystole in Exophthalmic Goiter. (Asystole mortelle dans la maladie de Basedow.) G. Mouriquand and L. Bouchut.

52. **Fatal Asystole in Exophthalmic Goiter.**—Mouriquand has attempted to determine whether the tachycardia of exophthalmic goiter is able alone to induce fatal asystole, as many maintain. He has analyzed 260 cases of exophthalmic goiter in the literature, and has found 30 in which death occurred from asystole, but closer study of the history showed aortic lesions in 5, mitral lesions in 12 and combined lesions in 3. In a personal case described, the exophthalmic goiter developed during convalescence from acute articular rheumatism, with fatal asystole in less than three months. In the majority of cases the fatal asystole in exophthalmic goiter is the result of the aggravation of a pre-existing cardiopathy by the disease. In another group the heart may be apparently sound, and the asytole due to chronic nephritis, severe pleurisy or compression in the mediastinum. In a third group of cases the tachycardia seems to be the only factor of the fatal asystole, but such cases prove nothing in the absence of histologic examination of the myocardium. In these cases the course is generally rapid, progressive, without remissions, and the asystole develops only a few weeks after the first symptoms of the exophthalmic goiter. As a rule, it is possible to trace to some infection—generally quite recent—the thyroid lesion which determined the exophthalmic goiter, and also the heart lesion which precipitated the asystole. Ordinarily these cases are due to acute rheumatism, producing at the same time both the thyroid and the cardiac lesions. The cardiac lesion consists in a fresh inflammatory process in the endocardium or myocardium, primary or developing on old lesions. This association is of all the most dangerous, since the rheumatismal infection creates simultaneously the two causes most favorable for the production of fatal asystole: the Basedow tachycardia and the inflammatory cardiopathy.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic.

XII, No. 3, pp. 339-506. Last indexed Dec. 14, 1907, p. 2044, and April 11, p. 1229.

53 Treatment of Suppurative Affections of the Adnexa. H. Fehling.
54 Clinical Study of Hypoplasia and Infantilism of the Genitals. A. Mayer.
55 Publotomy in Six Cases. (Hebosteotomie.) J. Karaki.
56 Two Cases of Ovarian Embryoma. Y. Iwase.
57 Causes, Symptoms and Treatment of Tardy Hemorrhage in the Puerperium. (Spätblutungen im Wochenbett.) T. Vogelsanger.
58 Histogenesis and Diagnosis of Ovarian Carcinoma. G. Jung.

XIII, No. 1, pp. 1-172.

59 Comparative Size of Japanese Female Pelvis. (Beckenmessungen an lebenden Japanerinnen.) M. Ogata.
60 Influence of Castration on Development of Pelvis in Lambs. (Entwicklung des knöchernen Beckens nach der Geburt.) K. Franz.
61 Anatomic Research on Nulliparous Uteri with Special Regard to Development of Isthmus. K. Hegar.
62 *Appendicitis in Women and its Importance in Gynecology. (Appendicitis beim Weibe.) Pankow.
63 Shape of Ureters, especially in the Fetus and the New-born. (Form der Ureteren.) L. Seitz.
64 *Childbirth with Contracted Pelvis. (Geburtsverlauf beim engen Becken.) F. Jacobi.
65 The So-called Myoma Capsule. R. Stern.

62. **Appendicitis in Women and Its Importance in Gynecology.**—Pankow found the appendix sound in less than 25 per cent. of 150 removed in the course of gynecologic operations. Nearly three-fourths of the women had signs of past or present inflammation in the appendix, and he is convinced that there is a close connection between appendicitis and subsequent gynecologic affections. Whenever the female abdomen is opened for any cause, he urges the removal of the appendix as a routine procedure. When macroscopically sound its removal is such a simple matter that it scarcely complicates the operation at all, while it removes one source of gynecologic affections. As appendicectomy is possible only by the abdominal route, this is a decisive argument against vaginal operations. He adds that Pfannenstiel's transverse incision of the fascia has banished all danger of postoperative hernia. He relates a number of typical examples from Krönig's clinic at Freiburg, including some in which the inflammation spread from the appendix to the adnexa or vice versa, of sterility, neurasthenia, retroflexion, etc., for which appendicitis, possibly in childhood, was responsible. He also discusses chronic recurring appendicitis as a cause of abdominal disturbances, and the differentiation of abdominal pain with coexisting hystero-neurasthenia, illustrated by examples of each type. He cites the grave prognosis of appendicitis in pregnancy as another argument in favor of its prophylactic removal.

64. **Course of Childbirth with Contracted Pelvis.**—Jacobi writes from Fehling's clinic at Strasburg to analyze the experiences with 302 childbirths with shallow or contracted pelves, and discusses the mechanism of delivery. The mortality of the children with operative delivery was 24 per cent. The maternal mortality was 1.32 per cent. The principles followed are to wait with primiparæ; in case intervention becomes necessary, high forceps, enlargement of the pelvis or Cesarean section. Multiparæ must decide for themselves beforehand whether treatment shall be expectant or prophylactic. At term, expectant treatment at first, with high forceps later, and if this fails operative intervention.

Berliner klinische Wochenschrift.

June 29, XLV, No. 26, pp. 1213-1256.

66 *Consequences of Syphilis. (Folgen der Lues.) Waldvogel and Sussenguth.
67 *Eczema and Asthma. L. Langstein.
68 *Cirrhosis of Liver Following Lympathic Leukemia. M. Mosse.
69 *Antagonistic Action of Adrenalin and Lymphagogs. Z. Tomaszewski and G. G. Wilenko.
70 *Histology and Classification of Acute Ascending Spinal Paralysis. (Landrysche Paralyse.) A. Münzer.
71 *Physiology of the Heart Contractions. (Herbewegung und Herzkontraktion.) E. Rehfisch.
72 Yellow Atrophy in Syphilis. P. Bendig.
73 *Improved Technic for Making Diphtheria Antitoxin. P. Blumenthal.
74 Isolated Paralysis of External Rectus with Otitis Media. (Isolierte Lähmung des Musculus rectus externus bei gleichseitiger eiteriger Mittelohrentzündung.) A. Peyser.
75 Artificially Induced Hyperemia in Treatment of Flatfoot. (Stauungshyperämie bei fixiertem Plattfusse.) G. Muskat.

66. Consequences of Syphilis.—In this communication from the medical clinic at Göttingen, the after-history of 486 patients treated for syphilis, from 1873 to 1882, is reviewed. Accurate information was obtained in regard to 297, including 108 women and 6 children. This information was obtained from insane asylums and hospitals, village authorities and general practitioners throughout the country, mostly in southern Hannover. The results show, it is said, that the picture is generally painted too black, as a rule. The life expectancy proved to average only two years less than the normal standard. Tabes developed in 2.5 per cent. and progressive paralysis was responsible for 9.3 per cent. of the deaths among the syphilitics. The interval between infection and the paralysis ranged from 8 to 27 years. This material is tabulated under different headings. Of the 491 living children born, 19.4 per cent. succumbed during the first year of life, a figure which corresponds with the average of 20.5 per cent. mortality of infants under 1 year in Prussia during those years. The families have an average of 2.42 living and healthy children.

67. Eczema and Asthma.—Langstein discusses the connection between eczema and asthma, relating four case-histories to confirm the assumption of the "exudative diathesis" as the basis for the two affections. He calls attention anew to the value of a salt-free diet in the treatment of eczema, although it has no action on the asthma. The latter is best treated by change of air. The deprivation of salt by Finkelstein's method proved rapidly effectual in curing the eczema; the child's food contains the standard proportions of fat, albumin and sugar to the quart of whole milk, but only one-fifth part of the salt.

68. Metalymphemic Cirrhosis of Liver.—Mosse reports a case of lymphatic leukemia in a man of 55 in which the blood picture was restored to normal by Roentgen treatment. About one year later signs of cirrhosis of the liver and chronic peritonitis developed, fatal in eight months. He ascribes the liver affection to injury of the parenchyma cells by the lymphocytes destroyed by the Roentgen treatment, similarly to the injurious action of alcohol on the red corpuscles, to which Kretz and others ascribe the cirrhosis of the liver in "gin liver." He says that this is the first case on record of lymphatic leukemia with histologic findings after prolonged Roentgen exposures.

69. Antagonistic Action of Adrenalin and the Lymphagogs.—This communication from Senator's laboratory suggests that mechanical factors may predominate in the effects of adrenalin on the sugar metabolism. The adrenalin retards the lymph current, and the blood thus contains less of the substances which are normally contained in the blood and which are needed for the oxidation of the carbohydrates.

70. Histology and Classification of Landry's Paralysis.—Münzer presents evidence to show that acute ascending spinal paralysis is the result of acute poliomyelitis, which possibly may have been caused by some intoxication of the organism.

71. Physiology of the Heart Contractions.—Rehfisch describes experiments on 50 dogs undertaken to determine the relations between the difference between the maximal and minimal blood pressure and the amplitude of the heart's contractions.

73. Production of Diphtheria Antitoxin.—Blumenthal treats the horses by injection of the toxin directly into the lungs through the intercostal spaces. The spongy structure of the lungs allows injection of large amounts of the toxin, while the specific activity of the lung cells leads to the production of exceptionally large amounts of antitoxin. He gives the details of inoculation of two horses showing the exceptionally large amounts of antitoxin units in their serum under this intrapulmonal technic. He thinks that this method yields a very powerful serum in the briefest time, with less harm to the animal and with the least signs of reaction. Experiments with intratracheal inoculation showed that by this route the toxin is absorbed too rapidly into the blood before it is able to induce the local specific reaction.

Deutsche medizinische Wochenschrift, Berlin.

July 2, XXXIV, No. 27, pp. 1169-1216.

76 *Treatment of Exophthalmic Goiter. (Basedowsche Krankheit.) M. Bernhardt.
77 *Operative Treatment of Embolism of Pulmonary Artery. (Operation der Embolie der Lungenarterie.) F. Trendelenburg.
78 Differential Diagnosis of Inflammation of Appendix and Adnexa. Rinne.
79 Binding of Complement in Relapsing Fever. (Komplementbindung bei Recurrenserkrankungen des Menschen und experimenteller Recurrens-Spirochätose der Mäuse und Ratten.) W. Kolle and P. Schatiloff.
80 Resistance of Trypanosomes to Atoxyl. (Atoxylfestigkeit der Trypanosomen.) A. Breinl and M. Nierenstein.
81 Serum Treatment in Eye Affections. (Serumtherapie bei Erkrankungen des Auges.) A. v. Hippel.
82 Chancre at Point of Experimental Inoculation. (Syphilitischer Initialaffekt der Bauchhaut an der Einstichstelle nach Impfung in die Hoden von Affen und Kaninchen.) E. Hoffmann, H. Löhe and P. Mulzer.
83 *Sarcoma of Lymph Glands Simulating Granuloma. (Granulomartiges Sarkom der Lymphdrüsen.) Dietrich.
84 Indifferent Results with Finkelstein's Salt-free Diet in Treatment of Eczema, etc., in Infants. (Salzarme Kost beim Säuglingsekzem, beim Strophulus und Pruritus infantum.) B. Spiethoff.
85 *Sawdust Bread in Treatment of Habitual Constipation. K. Blümel and H. Ulrici.
86 *Ultimate Results of Tracheotomy. F. Lehnerdt.

76. Treatment of Exophthalmic Goiter.—Bernhardt does not advise an operation until all other measures have failed, unless the goiter had preceded the other symptoms. The remarkably fine results of operative treatment in the hands of Kocher are undoubtedly due to the fact that in Switzerland the thyroid gland is almost universally abnormal. It is probable that when good results are obtained from operative measures the exophthalmic goiter was a secondary rather than a primary affection. He advocates galvanic treatment as sure to do no harm, while it may help the patient. In a certain number of cases it has proved of great benefit. Rest is the main requirement in treatment. In case of excessive heart action or with much weakness and anemia the patient should be kept permanently in bed. The good results of a sojourn in the mountains have been established again and again. Hydrotherapy is also useful avoiding cold procedures, except that an ice or cold water bag may be applied to the heart region to relieve severe symptoms. Iron, arsenic and quinin make a good tonic, with bromids when there is much agitation, and heart tonics when indicated. The majority of exophthalmic goiter patients have a neuropathic inheritance; the affection displays a hereditary and familial tendency and other severe neuroses are often to be found in the family history. These facts, he says, open a wide field for prophylactic action on the part of the physician.

77. Operative Treatment of Embolism of the Pulmonary Artery.—Trendelenburg gives an illustration of the emboli removed from the pulmonary artery of a man of 45. One embolus measured about 12 inches. The patient succumbed the next day and autopsy showed that he had overlooked another large embolus which proved responsible for the fatal termination—a mistake which could be avoided in other cases. The emboli can be extracted through a very small incision in the elastic wall of the artery. He hopes that the two experiences on record (see Siever's report, summarized in THE JOURNAL, July 25, page 358) will convince the doubters that operative treatment of embolism of the pulmonary artery is not a flashy example of surgical daring, but a well-justified procedure, adapted to its purpose, with which it will be possible, under favorable circumstances, to save from certain death otherwise doomed individuals.

83. **Sarcoma of Lymph Glands Simulating Granuloma.**—Dietrich warns of the possible latent sarcomatous nature of progressive enlargement of lymph glands diagnosed clinically as pseudoleukemia. Even when an excised scrap shows the structure of a granuloma, this does not exclude sarcoma. In examining such a case the connective tissue around the lesion should also be investigated for signs of sarcoma. He relates four cases; no signs of tuberculosis could be discovered, but granulomatous sarcomatous degeneration of glands in the abdomen or thorax was evident. The patients were men, one was quite young. The sarcoma had invaded the veins in some of the cases.

85. **Sawdust Bread for Habitual Constipation.**—Blümel says that an ounce of finely sifted beech wood sawdust can be worked into a pound of wheat bread dough without affecting the taste. He has used this "cellulose bread" in eighty cases and found it effectual in curing even old, rebellious constipation. The patients ate this bread exclusively after a preliminary course of castor oil or injections. The only failures were in severe cases of hysteria or neurasthenia, chlorosis or enteroptosis. He warns that the trees must be felled late in the fall or the sawdust will have an unpleasant taste.

86. **Ultimate Results of Tracheotomy.**—No after-effects were discovered in examining, at a later date, 173 children out of the 264 discharged from the Leipsic Surgical Clinic out of 404 on whom tracheotomy was performed in the twelve years before 1905. Lehnerdt, however, found 16 cases of stenosis in examining the remote results of the 1,539 tracheotomies performed at the Children's Hospital at Leipsic between 1892 and 1905. More than half of the operations in this latter group were done on children under 3, and the mortality was twice as high as among the older children. Of the 16 cases of stenosis, 14 developed between 1902 and 1905, while only two instances of stenosis were recorded in the ten preceding or the following years.

Münchener medizinische Wochenschrift.

June 30, LV, No. 26, pp. 1369-1416.

87 *Chyluria. H. Lüdke.
88 *Ocular Tuberculin Reaction. (Ophthalmoreaktion der Tuberkulose in ihrer Beziehung zum Sektionsergebnis und zur Tuberkulininjektion.) G. Fehsenfeld. Id. (Konjunktivalreaktion bei Genitaltuberkulose.) A. Hörrmann.
89 *Ocular Typhoid Toxin Reaction. (Ophthalmoreaktion bei Typhus abdominalis.) A. Meroni.
90 *Ocular Tuberculin Reaction. (Ist die konjunktivale Tuberkulin reaktion ungefährlich?) M. Goerlich.
91 *Cutaneous Tuberculin Reaction in Infants. (Die kutane Tuberkulinimpfung nach v. Pirquet bei Kindern des 1. Lebensjahres.) Morgenroth.
92 *Use of Gum Arabic in Spinal Anesthesia. (Verwendung von Gummi als Zusatz zum Anästhetikum bei Lumbalanästhesie.) E. Erhardt.

87. **Chyluria.**—Lüdke reports a case of chyluria in a maid servant in Germany, 46 years old, who had never lived in the tropics. No filaria could be discovered; the chyluria developed after an attack of cholecystitis. The colon bacillus could be cultivated repeatedly from the urine in almost pure cultures. He thinks that the inflammation in the bladder had probably led to the flow of lymph. There did not seem to be any chylemia, but the urine contained a larger proportion of fat than mere admixture with chyle would produce. Another remarkable feature of the case was that the total amount of urine was not increased, as it would be if there was actual lymphorrhagia. The general health did not seem to be impaired, although the patient eliminated from 60 to 130 grains of fat in the urine daily. This elimination proceeded regularly and was accompanied by about 0.1 per cent. of dextrose. On a diet of much fat or no fat the elimination of fat in the urine did not fluctuate, and the urine has been persistently milky since February, 1908.

88. **Ocular Tuberculin Reaction.**—Fehsenfeld compares the conjunctival response with the autopsy findings or the results of tuberculin injection. His experience includes 168 cases, with autopsy in 25. His conclusions are that the ocular test is useful as corroborative evidence, but that it has no decisive importance in diagnosis. Hörrmann discusses its differential value in genital tuberculosis, remarking that a positive response is generally obtained in clinically certain cases, with the exception of those with cachexia. The response is thus important for the prognosis. A negative response in an adult is presumptive of freedom from tuberculosis, but comparison of long series of autopsy findings is needed to decide this question definitely. Goerlich has had some disagreeable experiences with conjunctival instillation of tuberculin which show that the 1 per cent. solution can not be applied indiscriminately. Infants and scrofulous children should be excluded from the test, as also persons with the slightest tendency to irritation of the eyes or even of the nasopharynx, and to hysteria and hypochondria.

89. **Ocular Reaction in Typhoid.**—Meroni has been testing the instillation of typhoid toxin in the eye as a means of early diagnosis, according to Chantemesse's technic mentioned in THE JOURNAL, April 25, page 1344. He found in an experience with 55 patients that the reaction may be positive even after six hours, not only with typhoid patients, but also with others suffering from other maladies, as he tabulates in detail. After twenty-four hours the absence of reaction speaks against typhoid. The test has thus considerable practical value. Some individuals with exceptionally sensitive conjunctiva respond with a strong reaction to instillation of even an indifferent substance, such as sterile bouillon. No deleterious by-effects were noted in any instance, and the efficiency of the typhoid toxin was not impaired by heating to 60 C. He is now engaged in research to compare the sensitiveness of the conjunctiva in health and in typhoid fever to typhoid and colon bacillus toxin.

90. See abstract No. 88 above.

91. **Cutaneous Tuberculin Reaction in Infants.**—Morgenroth expatiates on the convenience of the Pirquet technic for infants and its reliability. Even in the doctor's office, without any special preparation, the test can be made with diluted "old" tuberculin without the slightest inconvenience for the child. Whenever a child gives a positive response his home environment should be investigated. Invariably in his experience some one with open tuberculosis was found in the family. The infection in infants is generally the result of inhalation, he thinks. Positive findings were obtained in 5 per cent. of the 200 infants under a year old thus tested at the Cologne children's clinic last winter.

92. **Addition of Mucilage to Anesthetic for Spinal Anesthesia.**—Erhardt relates further successful experiences with this technic. He thinks that the addition of a little gum arabic to the anesthetic materially prevents its absorption by the higher centers while not interfering with its anesthetic action, thus minimizing the dangers. He is enthusiastic over the prospects of spinal anesthesia when the surgeon once becomes accustomed to the idea that the patient can hear all he says, and when the patients learn that operations by this technic are absolutely painless and free from the after-effects of general anesthesia. One great advantage is that the surgeon can take his time, confident that the analgesia will last for hours.

Therapie der Gegenwart, Berlin.

July, XLIX, No. 7, pp. 289-336.

93 *Local Measures to Enhance Efficacy of Diphtheria Antitoxin. (Die Natürlichen Grenzen der Wirksamkeit einer Heilserum-Behandlung bei der Diphtheria faucium und Ihre gelegentliche notwendige Ergänzung durch bestimmte lokale Massnahmen.) G. Krönig.
94 Soluble Sedatives of the Veronal Group. (Therapeutische Verwendung leicht löslicher Schlafmittel aus der Veronalgruppe.) E. Steinitz.
95 *Action and Elimination of Drugs Injected Intravenously. (Wirkung und Ausscheidung intravenös injizierter Medikamente.) F. Mendel.
96 *Manual-Mechanical and Gymnastic Treatment of Emphysema of Lungs and Bronchial Asthma. F. Kirchberg.
97 *The General Practitioner and Roentgen Treatment. (Der praktische Arzt und die Röntgenbehandlung.) M. Levy-Dorn.

93. **To Enhance the Efficacy of Diphtheria Antitoxin.**—Krönig discusses the natural limitations of antitoxin treatment of diphtheria. The results depend on the proportion between the amount of the toxins circulating in the blood and the amount of antibodies introduced in the curative serum and whether the antibodies can obtain access to the toxins. He expresses amazement that so little attention has been paid hitherto to the distention of the swollen tissue with its stoppage of the capillaries, preventing the circulating of blood and

lymph through the region. This principle is recognized and applied everywhere else, the physician relieving conditions in infiltrates in which the circulation has been more or less arrested by one or more incisions. The circulation is generally at once re-established and necrosis and gangrene are warded off. This measure is particularly needed in diphtheria on account of its pronounced tendency to induce gangrene. In the diphtheric local process the toxin in the blood and the antibodies in the injected serum are unable to come into contact, and consequently the serum fails of its effect, while the products of the gangrenous process are absorbed and keep up the vicious circle. He makes a practice now of incising the diphtheric process in the throat when the fever does not subside after the injection of antitoxin and the diphtheric lesion in the throat remains hard and swollen. The incision generally bleeds very little; the more it bleeds the less obstruction in the capillaries. To promote the bleeding he applies warm compresses outside, and has the mouth rinsed with warm water to which a little mild antiseptic has been added. The procedure is but slightly painful, but the relief induced is frequently surprising, the temperature dropping at once, even although it had persisted high after one or two large injections. Since he has been systematically thus incising the hard swollen local process he has had much better results with antitoxin treatment. The number of gangrenous cases has been reduced to the minimum. These experiences confirm anew the necessity for injecting the serum at the earliest possible moment, while the vascular passages in the region of the local process are still open and unobstructed.

95. **Intravenous Medication.**—Mendel is a warm advocate of intravenous medication, and here describes further experiences with it and research on the action and elimination of drugs injected into the veins. For this research sodium salicylate and iodid, each in a 20 per cent. solution, are particularly instructive as they are taken up entirely by the circulation and their elimination can be easily and completely traced. The desired concentration of the drug in the blood can be obtained with smaller doses by intravenous injection, and the elimination is much slower than by other routes, which still further enhances the effect. This renders the danger of toxic cumulation more imminent in intravenous administration of such drugs as strophanthin and digitalis.

96. **Mechanical Treatment of Emphysema and Asthma.**—Kirchberg gives an illustrated description of a method of manual-mechanical massage of the chest in case of emphysema and bronchial asthma, supplemented by exercises in breathing. The aim is to expel the residual air, and for this he trains the patient to inhale sharply and then make the expiration as long and deep as possible. He claims that great relief can be obtained by these deep, prolonged expirations. He thinks that this aim is not realized by mobilizing the chest by chondrotomy, the Freund technic, as this does not affect expiration. The ribs do not move with deep expiration; only the diaphragm is drawn up more and more into the thorax. He applies vigorous massage treatment every day for three or four weeks at first, in the morning, with occasional rests, the total sitting being about twenty minutes long. The hyperemia induced by the massage aids in the relief experienced, while the general health improves.

97. **Roentgen Treatment.**—Levy-Dorn gives several examples of conditions indicating Roentgen treatment, as a guide to the general practitioner. Leukemia, sarcoma, lupus, sycosis, favus, rebellious psoriasis, pruritus and eczema are liable to be much benefited, he declares, as also are chronic joint affections, enlarged prostate and goiter, chronic rheumatism, exophthalmic goiter and certain neuralgias.

Wiener klinische Wochenschrift.

July 2, XXI, No. 27. pp. 970-1004.

98 Murmurs in the Pulmonary Area. (Im Gebiete der lungenarterie entstehende Geräusche.) L. v. Schrötter.
99 Fate of Spermatozoa. (Schicksal der Spermatozoen, welche nicht zur Befruchtung gelangen.) H. Königstein.
100 Bacteriologic Findings in Suppurative Bronchitis. R. Pollak.
101 Injection of Pneumococcus Cultures and Antiserum for Corneal Ulcers. (Das Römersche Immunisierungsverfahren in Fällen von Ulcus serpens corneae.) W. Reis.
102 *Tardy Rachitis. (Späte Rachitis.) E. Miesowicz.
103 Cutaneous Tuberculin Reaction in Children. (Kutane Tuberkulinreaktion im Kindesalter.) O. Grüner.
104 Pigment of Pneumonic Sputum. (Farbstoff des pneumonischen Sputums.) L. Pollak.
105 "Blood Dust." (Ultrateilchen des Blutplasmus.) A. Neumann.

102. **Tardy Rachitis.**—Miesowicz reports a case and reviews the literature. The distinguishing features are the development of the affection after the tenth year, the malformation of the long bones with distinct enlargement of the epiphyses of these bones, the influence of treatment and the characteristic Roentgen pictures of the junction of the epiphysis and the shaft. His patient was a girl of 17. The trouble began with pains in the ankles and their enlargement.

Zentralblatt für Chirurgie, Leipsic.

July 4, XXXV, No. 27, pp. 809-840.

106 Operation for Cleft Palate. (Technik der Gaumenspaltenoperation.) C. Helbing.
107 Suggestion for Operation on Low Diverticulum in Esophagus. (Zur Operation tiefsitzender Oesophagusdivertikel.) Lotheissen.

Zentralblatt für Gynäkologie, Leipsic.

July 4, XXXII, No. 27. pp. 873-904.

108 *"Lightning" Treatment of Cancer. (Behandlung des Karzinoms mittels Fulguration durch Dr. Keating Hart.) G. Leopold.
109 Delivery by Müller's Technic. (Extraktion nach Müller.) E. Kaufmann.
110 Two Cases of Spontaneous Rupture of Uterus. K. Eisenstein.

108. **"Lightning" Treatment of Cancer.**—Leopold describes a visit to Keating Hart at Marseilles to investigate the results of "fulguration" or "lightning" treatment of cancer, described in THE JOURNAL, March 21, 1908, page 1001. He says that the written descriptions of the method give very little idea of the technic which Hart has worked out in the course of several years. He regards the fulguration as merely a preliminary or adjuvant to the knife. The improvement realized even in advanced cases is remarkable, relieving the patient of hemorrhage, pains and ichorous discharge for a time at least. Disseminated nodules of recurring mammary carcinoma are fulgurated each for five or ten minutes. This softens the nodules and prepares them for excision, after which he fulgurates for twenty or thirty minutes. The fulguration does not lead to the formation of an eschar; the tissue merely turns brownish and edematous, with free exudation of lymph.

Hygiea, Stockholm.

May, LXX, No. 5, pp. 401-479.

111 *Syphilis in Registered Prostitutes, Especially Tertiary Manifestations. (Syfilis hos reglementerade kvinnor sarskildt med afseende pa tertiarismen.) H. I. Schlasberg.
112 *Detection of Tubercle Bacilli in Urine. E. Key.

June, No. 6, pp. 481-591.

113 *Operations on Hemophiliacs. (Om hämofili och kirurgiska ingrepp hos hämofila personer.) K. Dahlgren.
114 *Surgery of Brain Tumors, with a Case. (Om hjärntumörernas kirurgi.) G. Naumann.
115 Cervical Ribs. (Om halsrefben.) A. Reuterskiöld.
116 *Enzyme Reactions of Cow's Milk and Their Importance for Hygienic Control of Milk Supply. (Komjölkens enzymreaktioner.) C. Barthel.

111. **Tertiary Syphilis After Thorough Mercurial Treatment.**—Schlasberg records the pathologic history of 1,500 registered prostitutes at Stockholm who presented symptoms of syphilis between 1885 and 1906. All were given thorough specific treatment, but tertiary symptoms developed in 137. The percentage of those who had taken from one to nine courses of treatment was about the same in the tertiary and the non-tertiary cases: 21.6 per cent. of 116 tertiary and 18.1 per cent. of 855 non-tertiary—all under observation for more than five years—who had taken one course; 25.9 and 27.3 per cent. with two courses; 18.1 and 22.2 per cent. with three courses; 13.8 and 15.2 per cent. with four courses, and from 5 to 6.9 per cent. with seven to nine courses. The extent and severity of the secondary manifestations did not seem to have any connection with the prognosis, except possibly that the secondary manifestations had been comparatively milder in the cases in which tertiary symptoms developed later. Recurrence of the tertiary manifestations was observed in 34.3 per cent., mostly between the ages of 20 and 30; the interval

between infection and their development ranged from one to twenty-six years, but averaged from four to eleven years.

112. **Determination of Tubercle Bacilli in Urine.**—Key relates a few instructive cases of urogenital tuberculosis and dwells on the differentiation of tubercle from smegma bacilli, which is frequently a difficult matter, as he shows by several case histories. He comments further on the danger of carrying tubercle bacilli up into the kidney from the bladder or prostate when catheterizing the ureters. To avoid this the catheter must not be pushed too far in while the cystoscope is being introduced into the bladder. The tip of the catheter should be kept an inch or so back from the mouth of its tunnel in the cystoscope. He advocates connecting the catheter with an irrigator and sending a constant stream of salt solution through it during the entire procedure. No antiseptic must be used, as it would interfere with the cultivation of bacilli from the urine. He has done this in several cases, flushing the parts constantly as the cystoscope was being introduced and thereafter. In case of tuberculous processes in the bladder or prostate it might be wiser to expose the ureter and, through a small slit in it, introduce the catheter into the kidney. This seems to be the only way to avoid erroneous conclusions from transportation of bacilli from below, when conditions are such that there is little prospect of being able to rinse the bladder and prostate entirely free of germs before introducing the catheter. He thinks inoculation of guinea-pigs is indispensable to decide the question of the presence or absence of tuberculosis, adding that Block's method of crushing the glands near the point of inoculation hastens the development of the tuberculous lesion.

113. **Surgery on Hemophiliacs.**—Dahlgren had to operate in two cases of threatening appendicitis in men of 19 and 40. Both were "bleeders" and the operation was done only as the last resort and under every precaution. Neither patient survived the excessive loss of blood. Dahlgren believes that marriage should be forbidden to persons liable to beget bleeders, especially the women in a hemophiliac family, whether they are themselves bleeders or not. This prohibition need not extend to the male members of the family if they are free themselves from the tendency to hemophilia. The general health of a hemophiliac child should be kept constantly at its highest point, and the attendants, teachers and mates of the child should be instructed to ward off trauma of all kinds. No surgical measures should ever be attempted except in case of vital necessity. Preventive treatment with serum, lime salts or other hemostatic might be tried in this case. In the two cases reported the appendicitis was not responsible for the fatal outcome, but merely the loss of blood which oozed constantly from the wound, uninfluenced by lime salts and other hemostatic measures. The hemophiliac tendency was known beforehand in the younger man.

114. **Brain Tumors.**—Naumann's patient was a woman of 22 with symptoms indicating a tumor in the arm and leg motor center, and one was found at this point. It was encapsulated, about 4 or 5 cm. (1½ to 2 in.) in diameter and weighed 60 gm. (nearly two ounces). The main symptoms subsided completely; vision returned, and there have been no convulsions, headaches, vomiting or vertigo since the operation and no signs of recurrence during the interval of more than a year to date. The first symptoms had been observed nearly two years before the operation.

116. **Enzyme Reaction as Test for Milk Supply.**—Barthel reports a number of tests which showed, among other things, that milk kept on ice for several days, while its acidity did not increase, yet showed a constant multiplication of bacteria from about 10,000 or 220,000 to 49,000,000 or more per c.c. He advocates the methylene blue test (5 c.c. of a saturated alcoholic solution of methylene blue plus 190 c.c. of water—no formalin). He adds 0.5 c.c. of this solution to 10 c.c. of milk, pouring a few c.c. of fluid paraffin on top to keep out the air. The test-tube is then placed on the water bath at a temperature of 40 or 45 C. (104 or 113 F.). If the fluid loses its color in a few minutes, there are certainly more than 160,000,000 bacteria to the c.c. Pure milk takes more than three hours to destroy the tint.

Books Received

BREEDING GROUNDS OF CULICIDAE. By C. W. Daniels, M.B., Camb., M.R.C.S., Eng., Director of the Institute for Medical Research, Federated Malay States. THE CULICIDAE OF MALAYA. By G. F. Leicester, M.B., C.M., Edin., Assistant in the Institute for Medical Research, Federated Malay States. Studies from the Institute for Medical Research, Federated Malay States. Vol. 3, Part 3. Paper. Pp. 269. Singapore: Kelley & Walsh, 1908.

DIAGNOSIS BY THE URINE. By Allard Memminger, M.D., Professor of Chemistry and Hygiene and Clinical Professor of Urinary Diagnosis in the Medical College of South Carolina. Third edition. Cloth. Pp. 116, with illustrations. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1908.

THE BABY: ITS CARE AND DEVELOPMENT. By Le Grand Kerr, Professor of the Diseases of Children in the Brooklyn Postgraduate Medical School. Cloth. Pp. 150, with illustrations. Price, $1.00. Brooklyn: Albert T. Huntington, 1908.

MANUAL OF INSANITY. By H. C. Rutter, Columbus, Ohio, Medical Director Mental and Nervous Department of the Ohio Sanatorium Columbus, Ohio. Cloth. Pp. 295. Price, $2.50. Columbus: The Midland Pub. Co., 1905.

INFLUENCE OF FOOD PRESERVATIVES AND ARTIFICIAL COLORS ON DIGESTION AND HEALTH. IV.—Benzoic Acid and Benzoates. By H. W. Wiley, M.D. Paper. Washington: Government Printing Office, 1908.

THE SPHERE OF THE TRAINED NURSE. By W. A. Newman Dorland, A.M., M.D., Assistant Instructor in Obstetrics in the University of Pennsylvania. Paper. Pp. 32. Philadelphia School for Nurses, 1908.

ERNÄHRUNG UND KÖRPERBESCHAFFENHEIT. (Beiträge zum Konstitutionsbegriff). Von Kreisarzt Dr. Bachmann, zu Harburg a. E. Paper. Pp. 29. Munich: Verlag der Aerztlichen Rundschau (Otto Gmelin).

GRUNDZÜGE EINER SEXUELLEN PÄDAGOGIK IN DER HÄUSLICHEN ERZIEHUNG. Von Dr. med. Julian Marcuse. Paper. Pp. 45. Price, 30 cents. Munich: Verlag der Aerztlichen Rundschau (Otto Gmelin).

THIRTEENTH ANNUAL REPORT of the Board of Health of the City of Lawrence, Massachusetts. For the Year Ending Dec. 31, 1907. Paper. Pp. 57. Lawrence, Mass.: W. T. Reardon, 1908.

THE NATURAL HISTORY OF CANCER. By W. Roger Williams, Fellow of the Royal College of Surgeons. Cloth. Pp. 519. Price, $5.00. New York: William Wood and Co., 1908.

WOMEN IN INDUSTRY. By Louis D. Brandeis. Paper. Pp. 113. New York: National Consumers' League.

NEW PATENTS.

Recent patents of interest to physicians:

891758. Sterilizing cabinet. J. M. Allspaw, Michell, Ind.
891678. Operating and fracture table. J. H. Downey, Gainesville, Ga.
891679. Operating table. J. H. Downey, Gainesville, Ga.
891533. Pneumatic knee-pad. P. P. Gibbs, Gordon, Texas.
891776. Vibrator for movement-cure purposes. J. B. Kirby, Cleveland, Ohio.
891577. Ice-cream cooler and soda-fountain. W. H. Wallace, Indianapolis.
892022. Preparing hemostatic dressing. A. W. Ball, London, Eng.
891911. Atomizer. J. Cooperider, Madison, Ind.
892249. Electrical vibrator. M. K. Golden, San Francisco.
892047. Hospital-bed sheet. A. C. Halterman, Buckhannon, W. Va.
891956. Indicating bottle. W. C. Schmidt, Richmond, Va.
892341. Massage appliance. A. Weintraud, London, Eng.
892703. Combined atomizer and powder-distributor. W. J. Barber, Honeoye Falls, N. Y.
892580. Sterilizing water, etc. R. A. Cambier, Tixier, and C. E. Adnet, Paris, France.
892717. Inhaler. G. Ermold, Elizabeth, N. J.
892817. Invalid-bed with commode attachment. W. C. Freely, New York.
892842. Manufacture of peroxid of potassium. G. F. Jaubert, Paris, France.
892441. Electrotherapeutic generator. S. N. Metzler, Indianapolis.
892560. Appliance for removing facial defects. M. B. Smith, Syracuse, N. Y.
893146. Truss. W. Cromble, Lincoln, Neb.
893459. Sanitary belt. L. J. Davis, Battle Creek, Mich.
893464. Obstetrical forceps. W. B. Dewees, Salina, Kans.
893064. Ankle supporter. C. H. Ferris, Brooklyn.
893232. Optical testing instrument. J. F. Forth, Syracuse, N. Y.
893244. X-ray meter. G. C. Johnston, Pittsburg, Pa.
893354. Nebulizer. R. R. McGregor, Waco, Texas.
893021. Cup or head for massage devices. C. M. Siebert, Jr., Columbus, Ohio.
893208. Disinfecting apparatus. J. R. Van Dyne, Sedalia, Mo.
893213. Respirator. W. T. Whiteway, Cambridge, Mass.
894095. Truss. J. A. Anderson, Council Bluffs, Iowa.
893603. Water-purifier. J. Bowey, Jr., London, Ont., Canada.
893995. Nasal douche. E. W. Grove, St. Louis.
893843. Dropper-bottle. G. A. Hamman, Lawrence, Kans.
893868. Vibrator. G. B. Pickop, New Britain, Conn.
894166. Means for producing and utilizing rays of light for therapeutic purposes. C. E. Rogers, Seattle, Wash.
893755. Mirror for optical instruments and making same. G. N. Saegmuller, Rochester, N. Y.
894066. Surgical appliance. L. G. Scarpa, Turin, Italy.
894068. Construction and arrangement of sitting and bed-rooms in mansions of all kinds, especially hotels, sanitariums, and the like. B. Scherl, Erfurt, Germany.
893816. Starting device for mercury vapor apparatus. G. Schwarz and J. Amon, New York, N. Y.